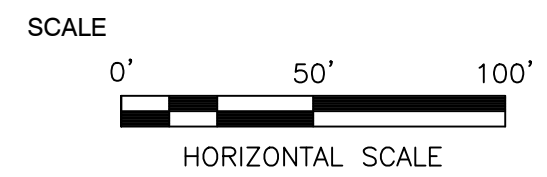


TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION



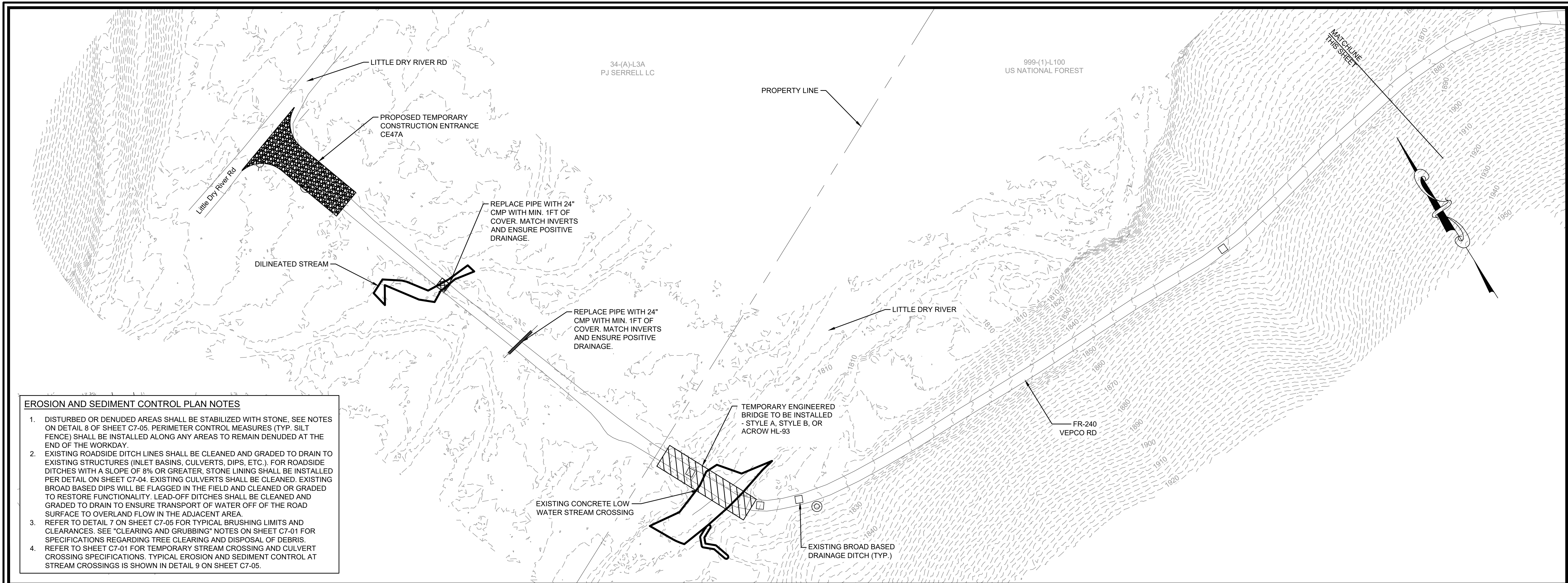
| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-61

SHEET NO.



EROSION AND SEDIMENT CONTROL PLAN NOTES

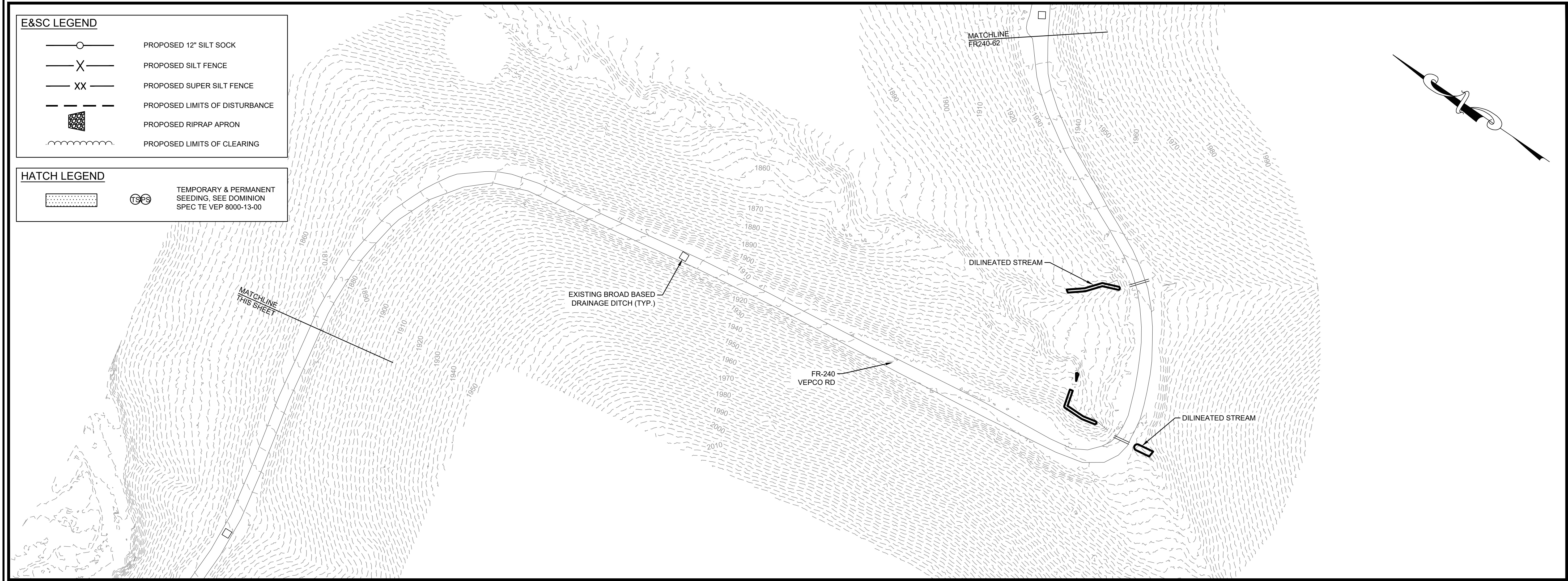
- DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE. SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
- EXISTING ROADSIDE DITCH LINES SHALL BE CLEANED AND GRADED TO DRAIN TO EXISTING STRUCTURES (INLET BASINS, CULVERTS, DIPS, ETC.). FOR ROADSIDE DITCHES WITH A SLOPE OF 8% OR GREATER, STONE LINING SHALL BE INSTALLED PER DETAIL ON SHEET C7-04. EXISTING CULVERTS SHALL BE CLEANED. EXISTING BROAD BASED DIPS WILL BE FLAGGED IN THE FIELD AND CLEANED OR GRADED TO RESTORE FUNCTIONALITY. LEAD-OFF DITCHES SHALL BE CLEANED AND GRADED TO DRAIN TO ENSURE TRANSPORT OF WATER OFF OF THE ROAD SURFACE TO OVERLAND FLOW IN THE ADJACENT AREA.
- REFER TO DETAIL 7 ON SHEET C7-05 FOR TYPICAL BRUSHING LIMITS AND CLEARANCES. SEE "CLEARING AND GRUBBING" NOTES ON SHEET C7-01 FOR SPECIFICATIONS REGARDING TREE CLEARING AND DISPOSAL OF DEBRIS.
- REFER TO SHEET C7-01 FOR TEMPORARY STREAM CROSSING AND CULVERT CROSSING SPECIFICATIONS. TYPICAL EROSION AND SEDIMENT CONTROL AT STREAM CROSSINGS IS SHOWN IN DETAIL 9 ON SHEET C7-05.

E&SC LEGEND

- PROPOSED 12" SILT SOCK
- PROPOSED SILT FENCE
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED RIPRAP APRON
- PROPOSED LIMITS OF CLEARING

HATCH LEGEND

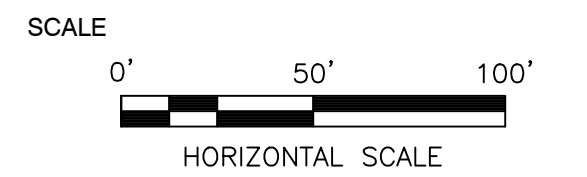
- TEMPORARY & PERMANENT SEEDING. SEE DOMINION SPEC TE VEP 8000-13-00



TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

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| REVISIONS | |
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |

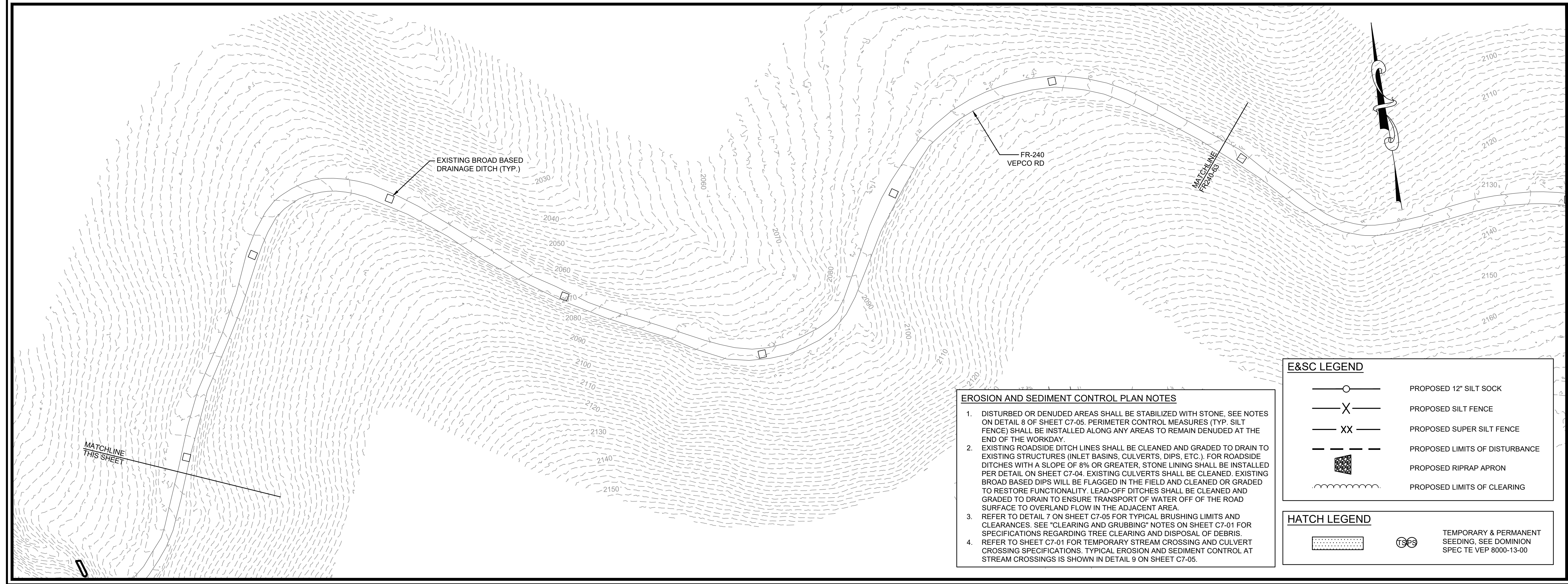
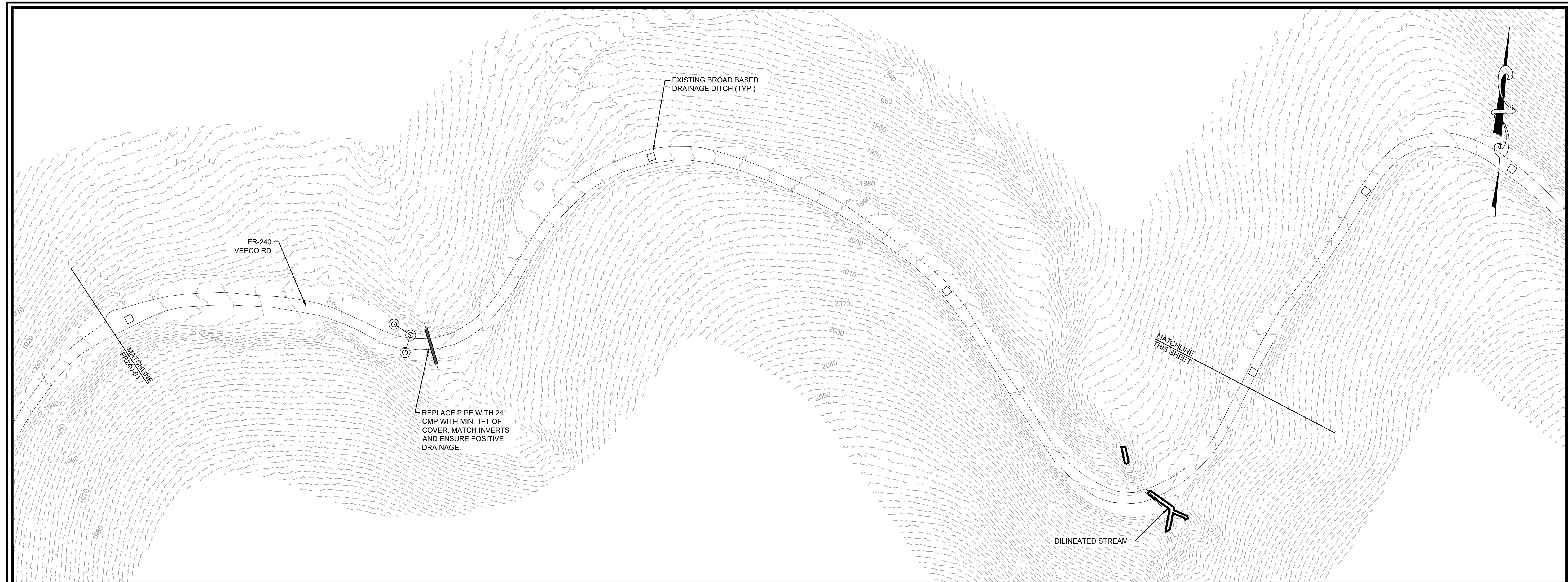
TITLE

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-62

SHEET NO.



- EROSION AND SEDIMENT CONTROL PLAN NOTES**
- DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE. SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
 - EXISTING ROADSIDE DITCH LINES SHALL BE CLEANED AND GRADED TO DRAIN TO EXISTING STRUCTURES (INLET BASINS, CULVERTS, DIPS, ETC.). FOR ROADSIDE DITCHES WITH A SLOPE OF 8% OR GREATER, STONE LINING SHALL BE INSTALLED PER DETAIL ON SHEET C7-04. EXISTING CULVERTS SHALL BE CLEANED. EXISTING BROAD BASED DIPS WILL BE FLAGGED IN THE FIELD AND CLEANED OR GRADED TO RESTORE FUNCTIONALITY. LEAD-OFF DITCHES SHALL BE CLEANED AND GRADED TO DRAIN TO ENSURE TRANSPORT OF WATER OFF OF THE ROAD SURFACE TO OVERLAND FLOW IN THE ADJACENT AREA.
 - REFER TO DETAIL 7 ON SHEET C7-05 FOR TYPICAL BRUSHING LIMITS AND CLEARANCES. SEE "CLEARING AND GRUBBING" NOTES ON SHEET C7-01 FOR SPECIFICATIONS REGARDING TREE CLEARING AND DISPOSAL OF DEBRIS.
 - REFER TO SHEET C7-01 FOR TEMPORARY STREAM CROSSING AND CULVERT CROSSING SPECIFICATIONS. TYPICAL EROSION AND SEDIMENT CONTROL AT STREAM CROSSINGS IS SHOWN IN DETAIL 9 ON SHEET C7-05.

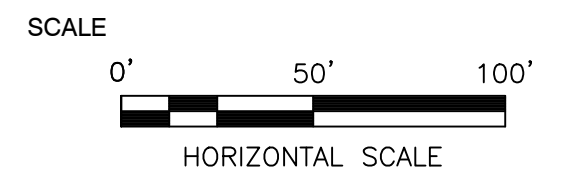
| E&SC LEGEND | |
|-------------|--------------------------------|
| | PROPOSED 12" SILT SOCK |
| | PROPOSED SILT FENCE |
| | PROPOSED SUPER SILT FENCE |
| | PROPOSED LIMITS OF DISTURBANCE |
| | PROPOSED RIPRAP APRON |
| | PROPOSED LIMITS OF CLEARING |

| HATCH LEGEND | |
|--------------|--|
| | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
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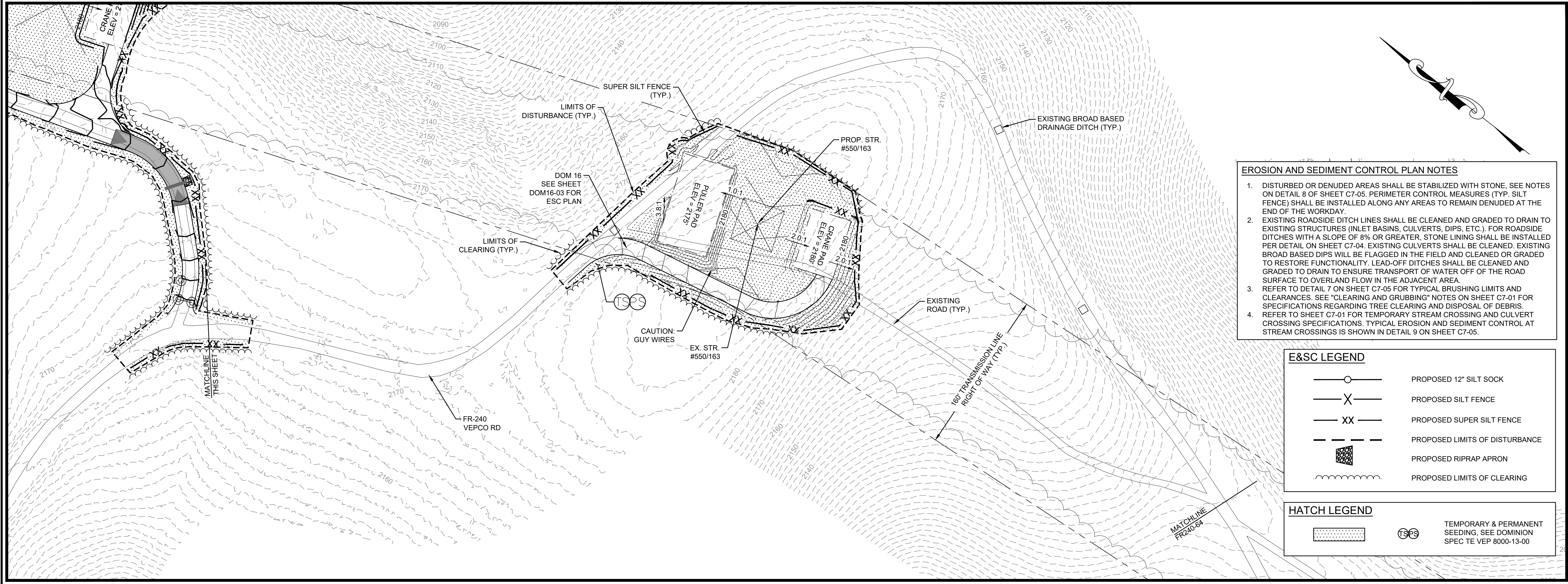
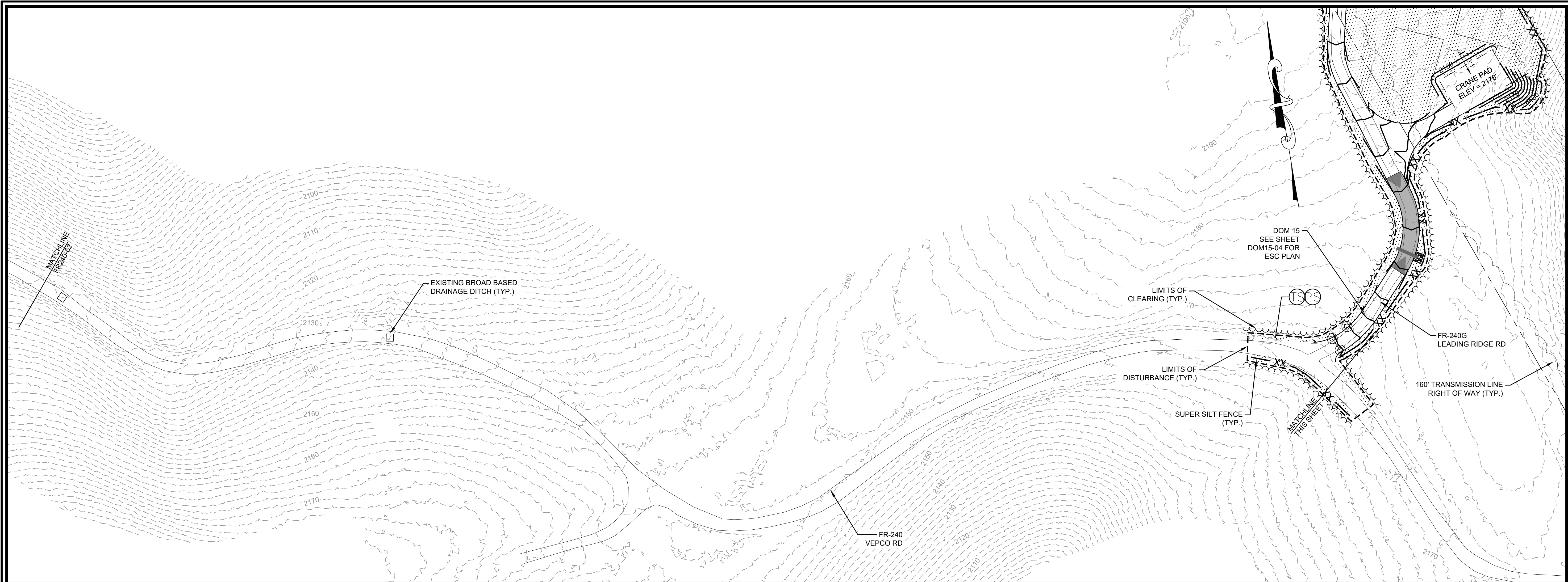
| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-63

SHEET NO.



EROSION AND SEDIMENT CONTROL PLAN NOTES

1. DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE, SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
2. EXISTING ROADSIDE DITCH LINES SHALL BE CLEANED AND GRADED TO DRAIN TO EXISTING STRUCTURES (INLET BASINS, CULVERTS, DIPS, ETC.). FOR ROADSIDE DITCHES WITH A SLOPE OF 8% OR GREATER, STONE LINING SHALL BE INSTALLED PER DETAIL ON SHEET C7-04. EXISTING CULVERTS SHALL BE CLEANED. EXISTING BROAD BASED DIPS WILL BE FLAGGED IN THE FIELD AND CLEANED OR GRADED TO RESTORE FUNCTIONALITY. LEAD-OFF DITCHES SHALL BE CLEANED AND GRADED TO DRAIN TO ENSURE TRANSPORT OF WATER OFF OF THE ROAD SURFACE TO OVERLAND FLOW IN THE ADJACENT AREA.
3. REFER TO DETAIL 7 ON SHEET C7-05 FOR TYPICAL BRUSHING LIMITS AND CLEARANCES. SEE "CLEARING AND GRUBBING" NOTES ON SHEET C7-01 FOR SPECIFICATIONS REGARDING TREE CLEARING AND DISPOSAL OF DEBRIS.
4. REFER TO SHEET C7-01 FOR TEMPORARY STREAM CROSSING AND CULVERT CROSSING SPECIFICATIONS. TYPICAL EROSION AND SEDIMENT CONTROL AT STREAM CROSSINGS IS SHOWN IN DETAIL 9 ON SHEET C7-05.

E&SC LEGEND

| | |
|---------------|--------------------------------|
| —○— | PROPOSED 12" SILT SOCK |
| —X— | PROPOSED SILT FENCE |
| —XX— | PROPOSED SUPER SILT FENCE |
| - - - - | PROPOSED LIMITS OF DISTURBANCE |
| [Hatched Box] | PROPOSED RIPRAP APRON |
| ~~~~~ | PROPOSED LIMITS OF CLEARING |

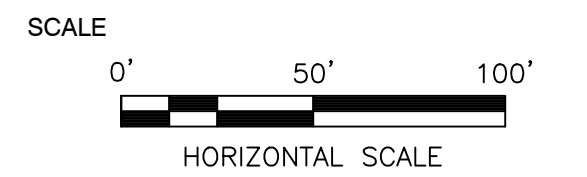
HATCH LEGEND

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| [Dotted Box] | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |
| [TSS Symbol] | |

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
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| REVISIONS | |
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |

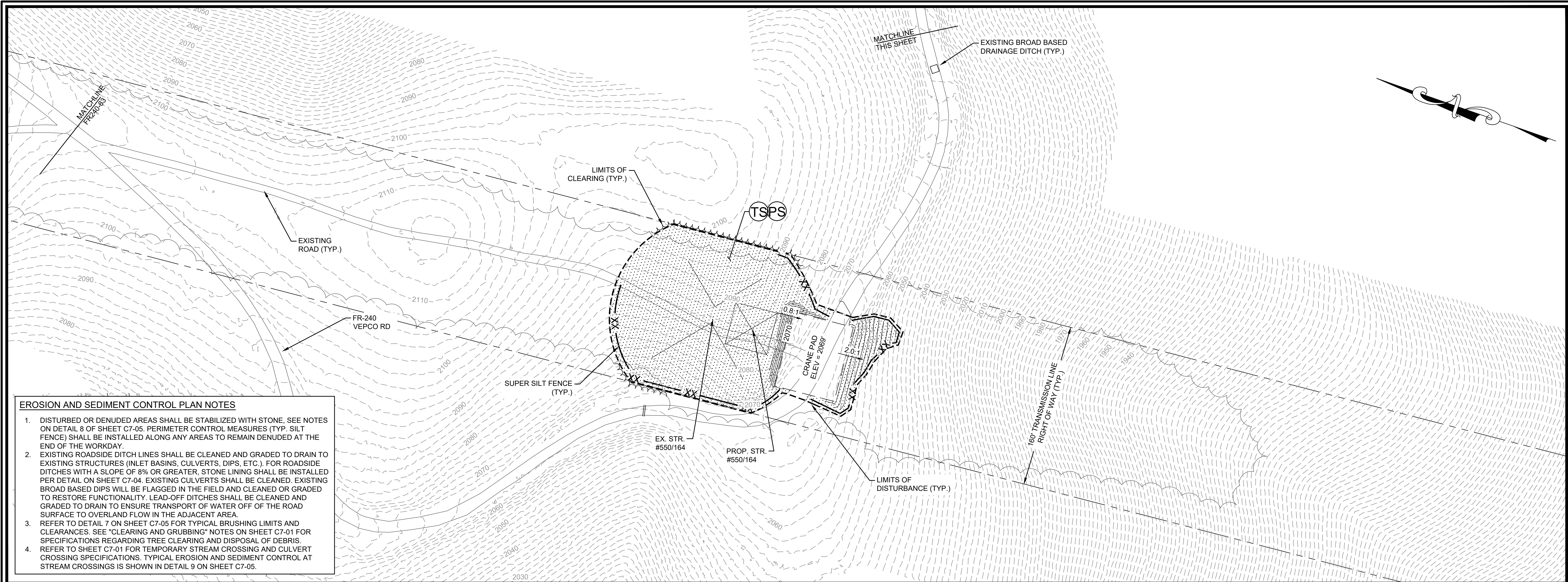
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FR-240
VEPCO ROAD
ESC PLAN

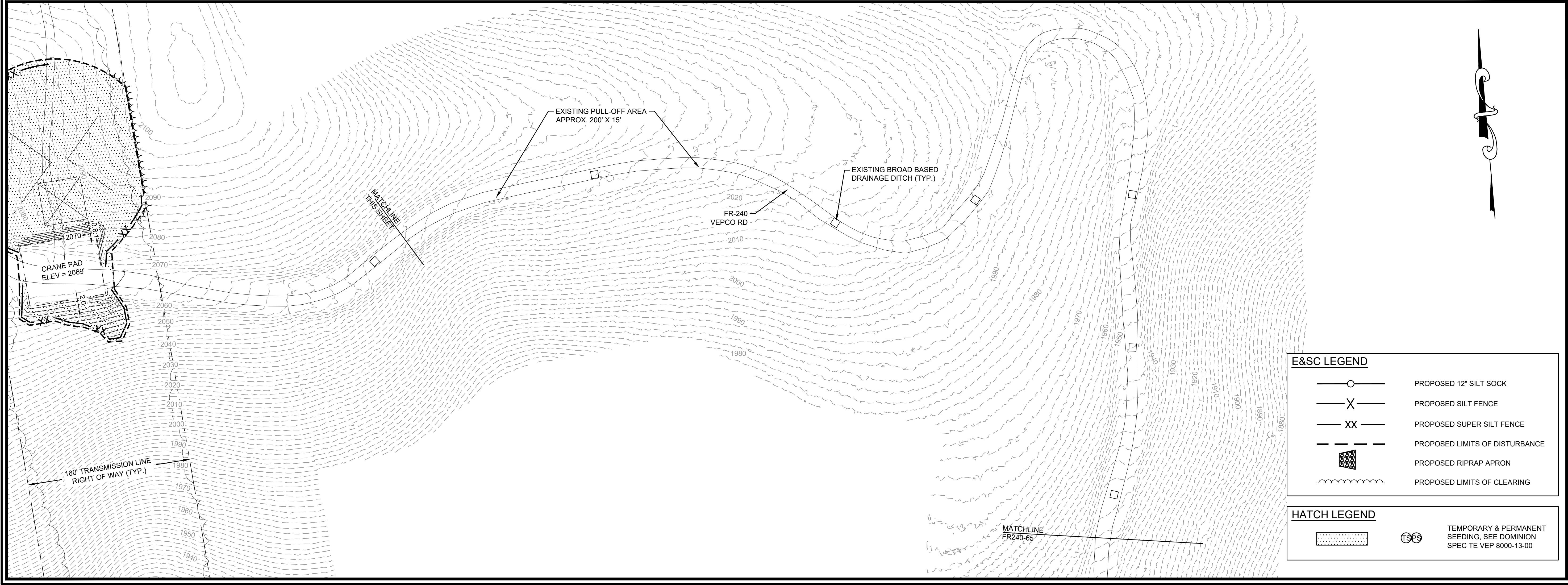
PROJECT NO. 50106442

FR240-64

SHEET NO.



- EROSION AND SEDIMENT CONTROL PLAN NOTES**
1. DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE. SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
 2. EXISTING ROADSIDE DITCH LINES SHALL BE CLEANED AND GRADED TO DRAIN TO EXISTING STRUCTURES (INLET BASINS, CULVERTS, DIPS, ETC.). FOR ROADSIDE DITCHES WITH A SLOPE OF 8% OR GREATER, STONE LINING SHALL BE INSTALLED PER DETAIL ON SHEET C7-04. EXISTING CULVERTS SHALL BE CLEANED. EXISTING BROAD BASED DIPS WILL BE FLAGGED IN THE FIELD AND CLEANED OR GRADED TO RESTORE FUNCTIONALITY. LEAD-OFF DITCHES SHALL BE CLEANED AND GRADED TO DRAIN TO ENSURE TRANSPORT OF WATER OFF OF THE ROAD SURFACE TO OVERLAND FLOW IN THE ADJACENT AREA.
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E&SC LEGEND

| | |
|-------|--------------------------------|
| —○— | PROPOSED 12" SILT SOCK |
| —X— | PROPOSED SILT FENCE |
| —XX— | PROPOSED SUPER SILT FENCE |
| --- | PROPOSED LIMITS OF DISTURBANCE |
| ■ | PROPOSED RIPRAP APRON |
| ~~~~~ | PROPOSED LIMITS OF CLEARING |

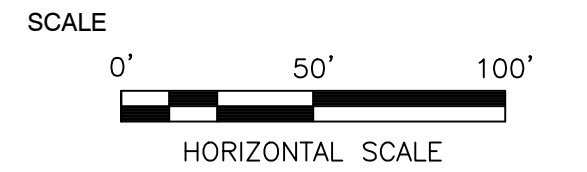
HATCH LEGEND

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| (TS/PS) | |

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

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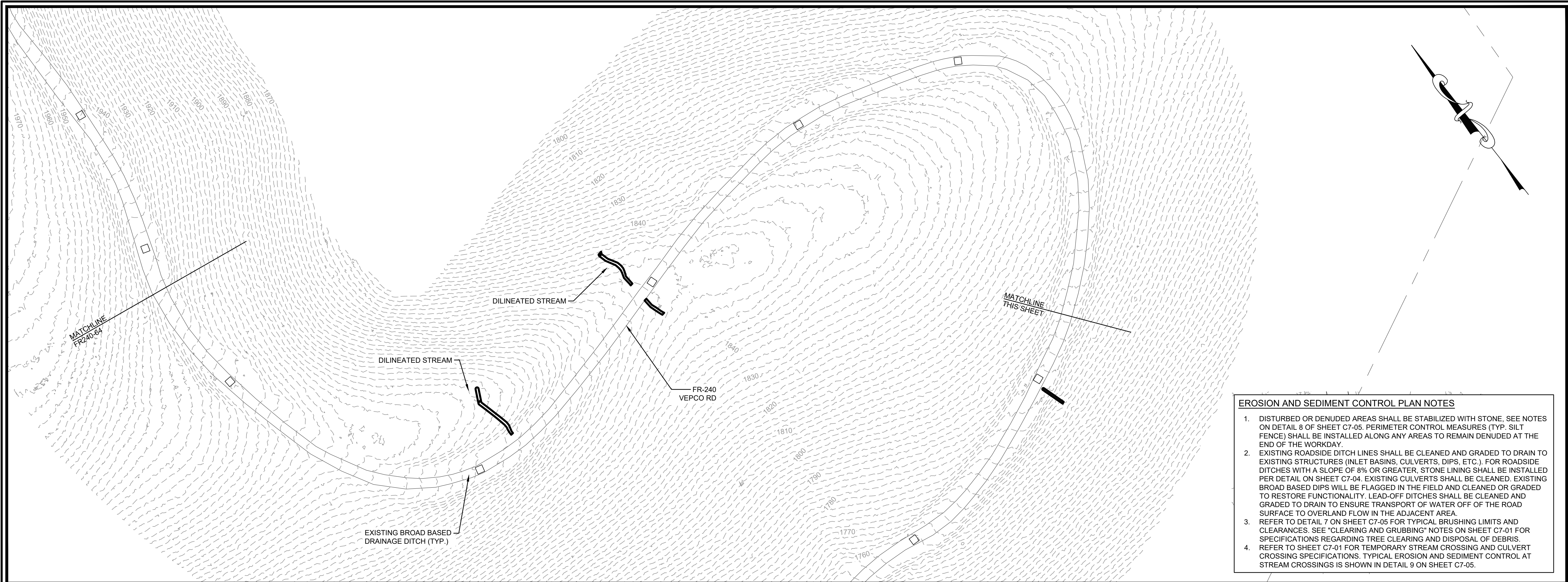
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-65

SHEET NO.



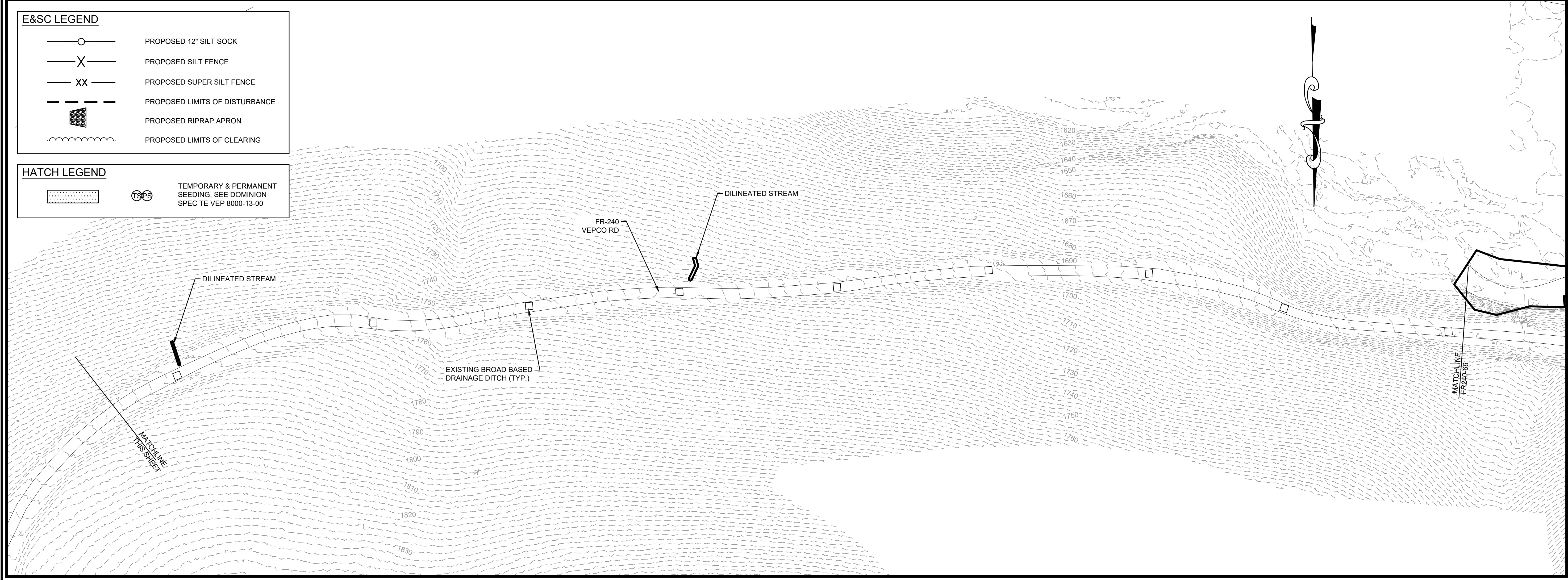
- EROSION AND SEDIMENT CONTROL PLAN NOTES**
1. DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE. SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
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E&SC LEGEND

- PROPOSED 12" SILT SOCK
- PROPOSED SILT FENCE
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED RIPRAP APRON
- PROPOSED LIMITS OF CLEARING

HATCH LEGEND

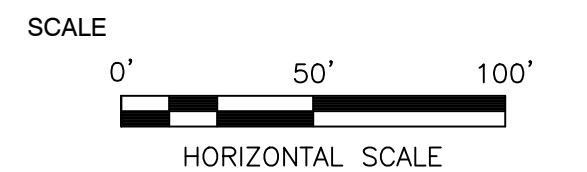
- TEMPORARY & PERMANENT SEEDING. SEE DOMINION SPEC TE VEP 8000-13-00



TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

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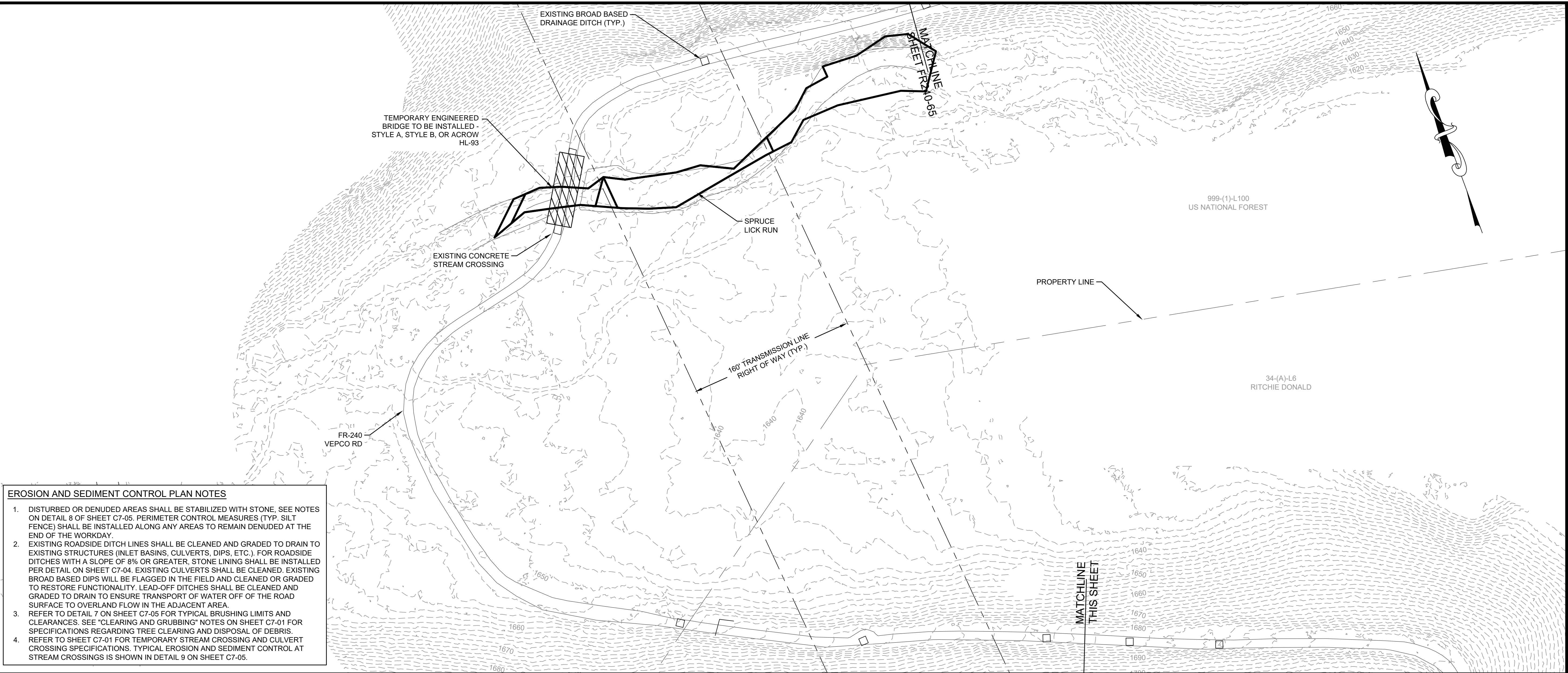
| REVISIONS | |
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-66

SHEET NO.



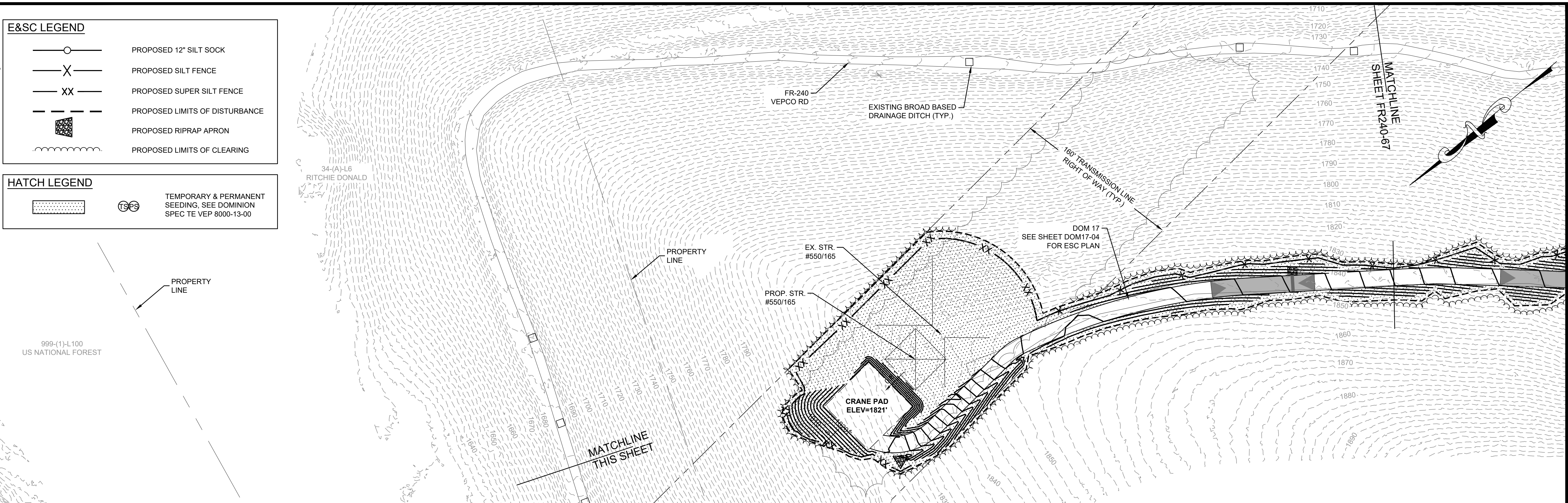
- EROSION AND SEDIMENT CONTROL PLAN NOTES**
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E&SC LEGEND

| | |
|--|--------------------------------|
| | PROPOSED 12" SILT SOCK |
| | PROPOSED SILT FENCE |
| | PROPOSED SUPER SILT FENCE |
| | PROPOSED LIMITS OF DISTURBANCE |
| | PROPOSED RIPRAP APRON |
| | PROPOSED LIMITS OF CLEARING |

HATCH LEGEND

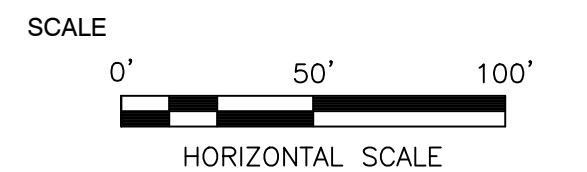
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| | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |
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TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

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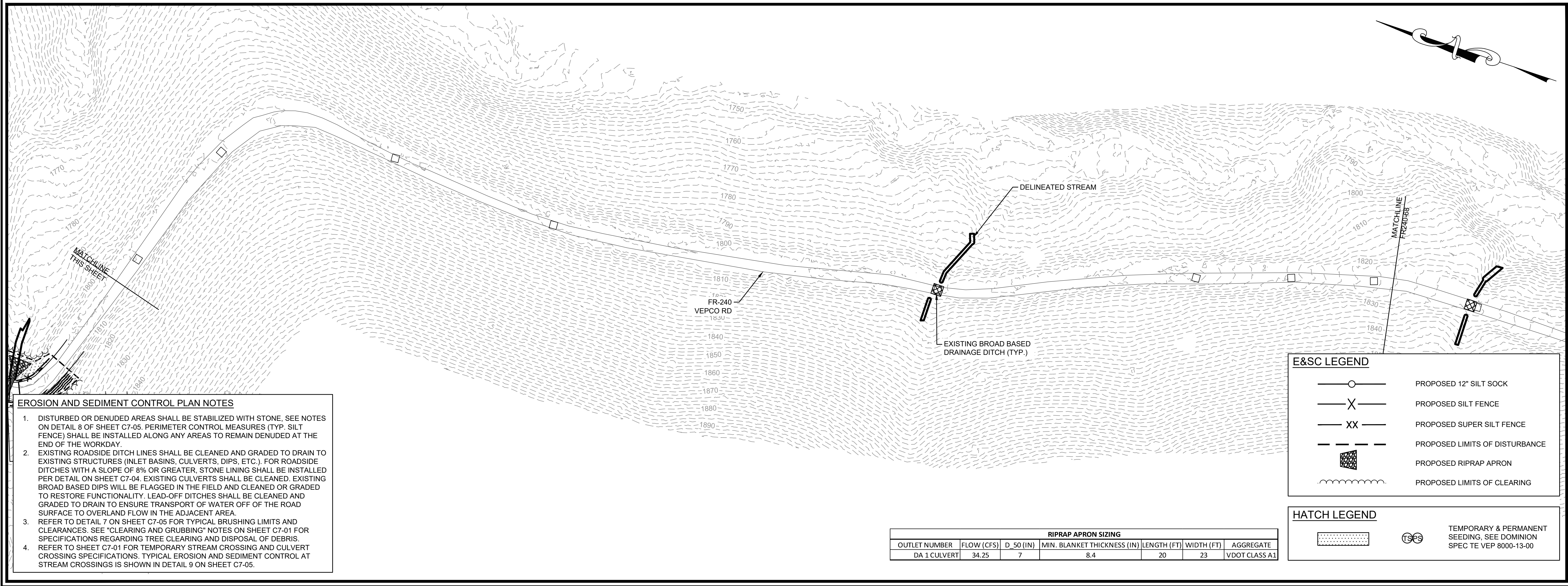
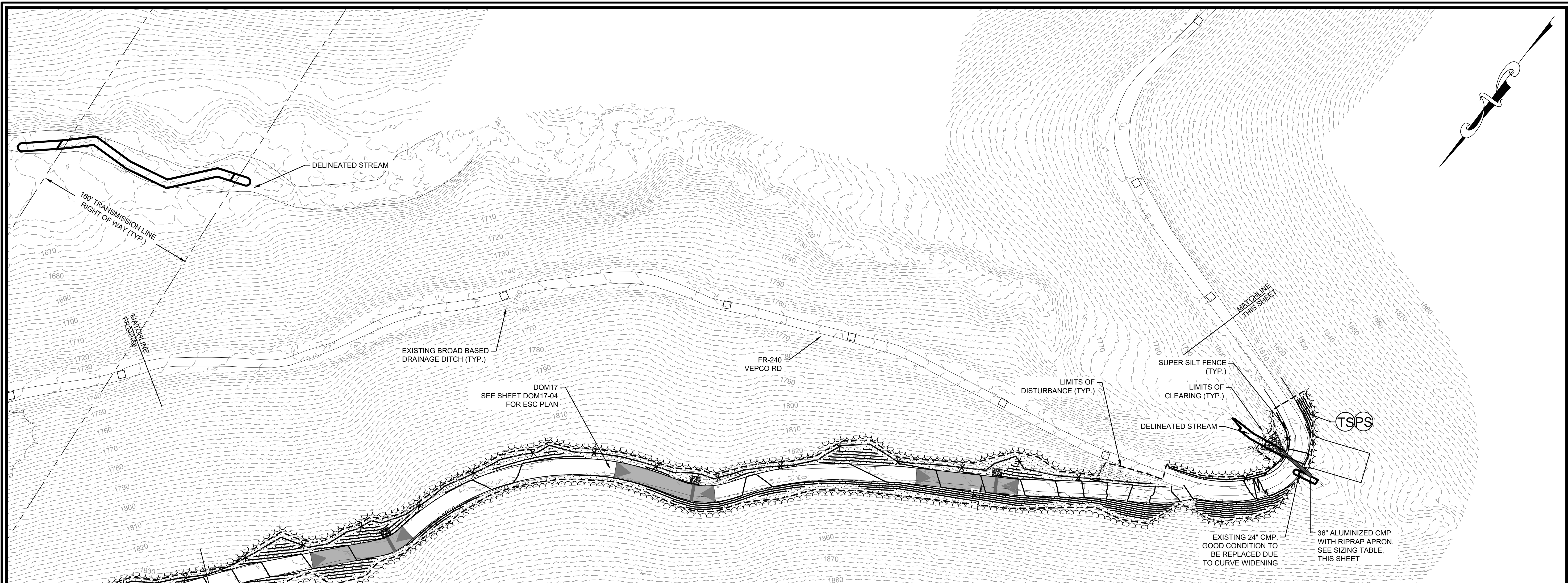


| REVISIONS | |
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

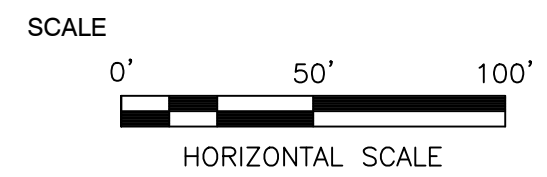
PROJECT NO. 50106442

SHEET NO.



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PRELIMINARY
NOT FOR CONSTRUCTION



| REVISIONS | |
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

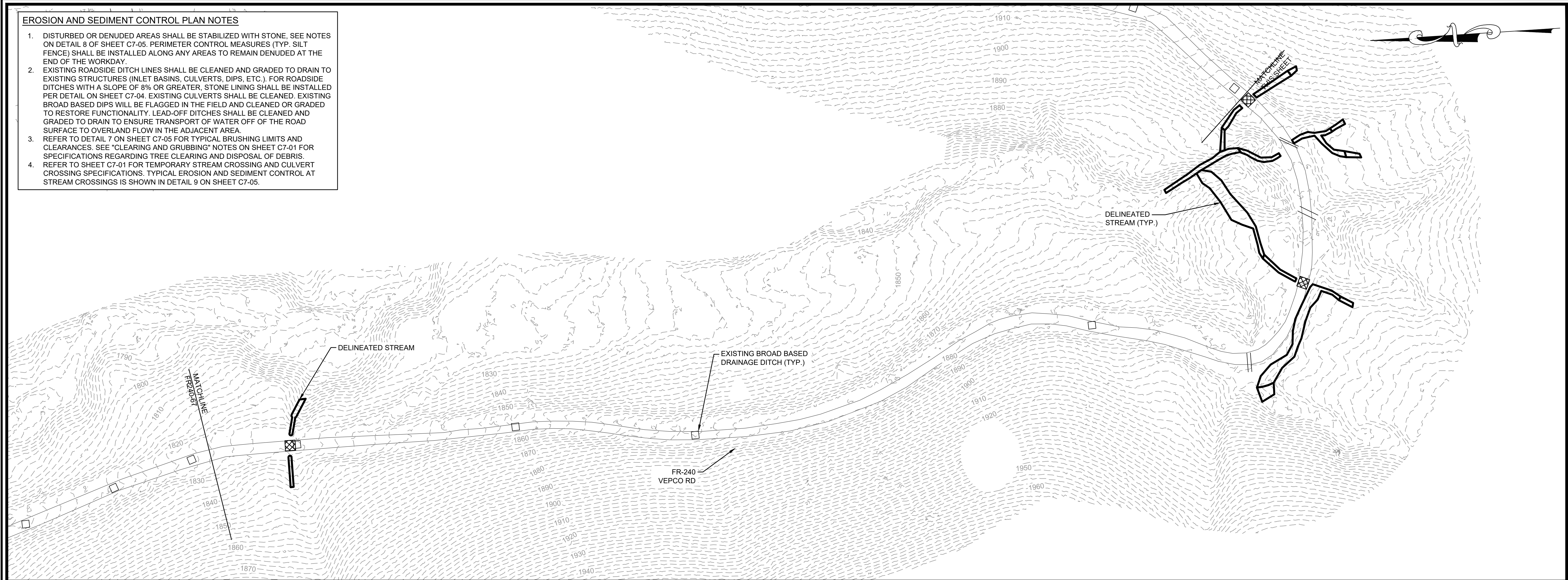
PROJECT NO. 50106442

FR240-68

SHEET NO.

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE, SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
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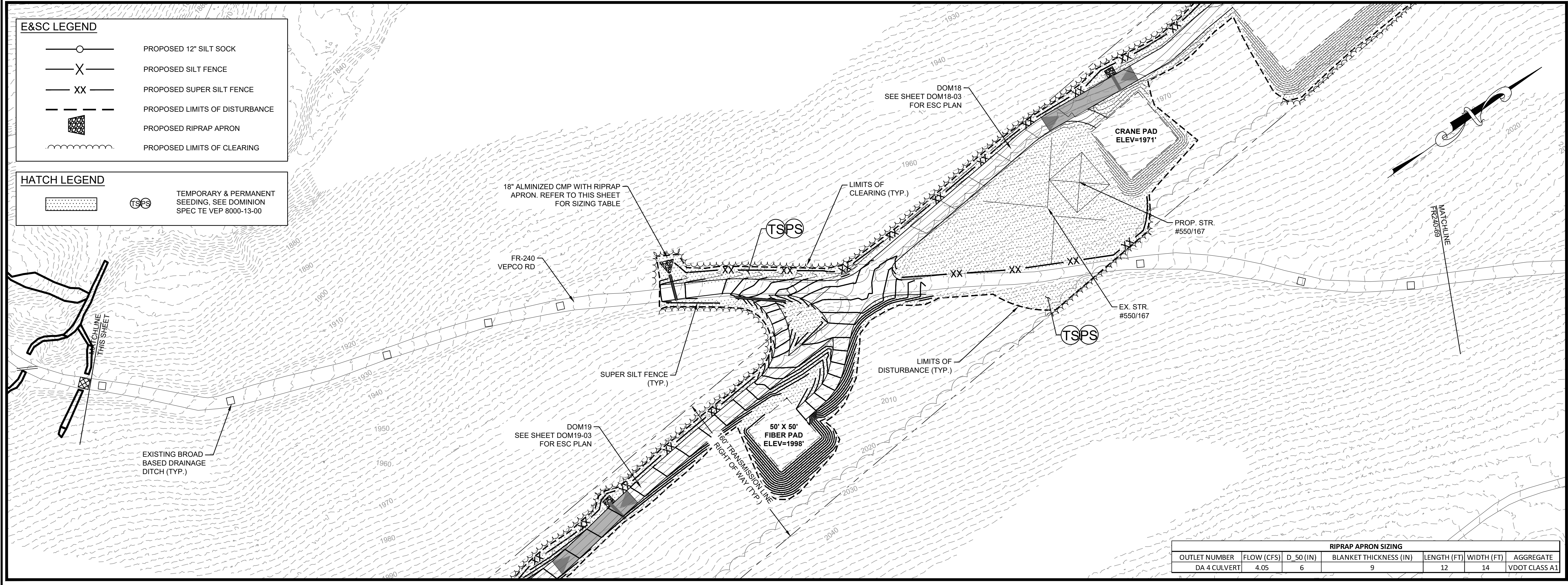


E&SC LEGEND

- PROPOSED 12" SILT SOCK
- PROPOSED SILT FENCE
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED RIPRAP APRON
- PROPOSED LIMITS OF CLEARING

HATCH LEGEND

- TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00

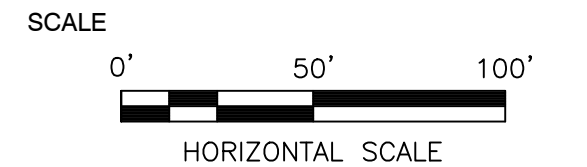


| RIPRAP APRON SIZING | | | | | | |
|---------------------|------------|-----------|------------------------|-------------|------------|---------------|
| OUTLET NUMBER | FLOW (CFS) | D 50 (IN) | BLANKET THICKNESS (IN) | LENGTH (FT) | WIDTH (FT) | AGGREGATE |
| DA 4 CULVERT | 4.05 | 6 | 9 | 12 | 14 | VDOT CLASS A3 |

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

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| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |

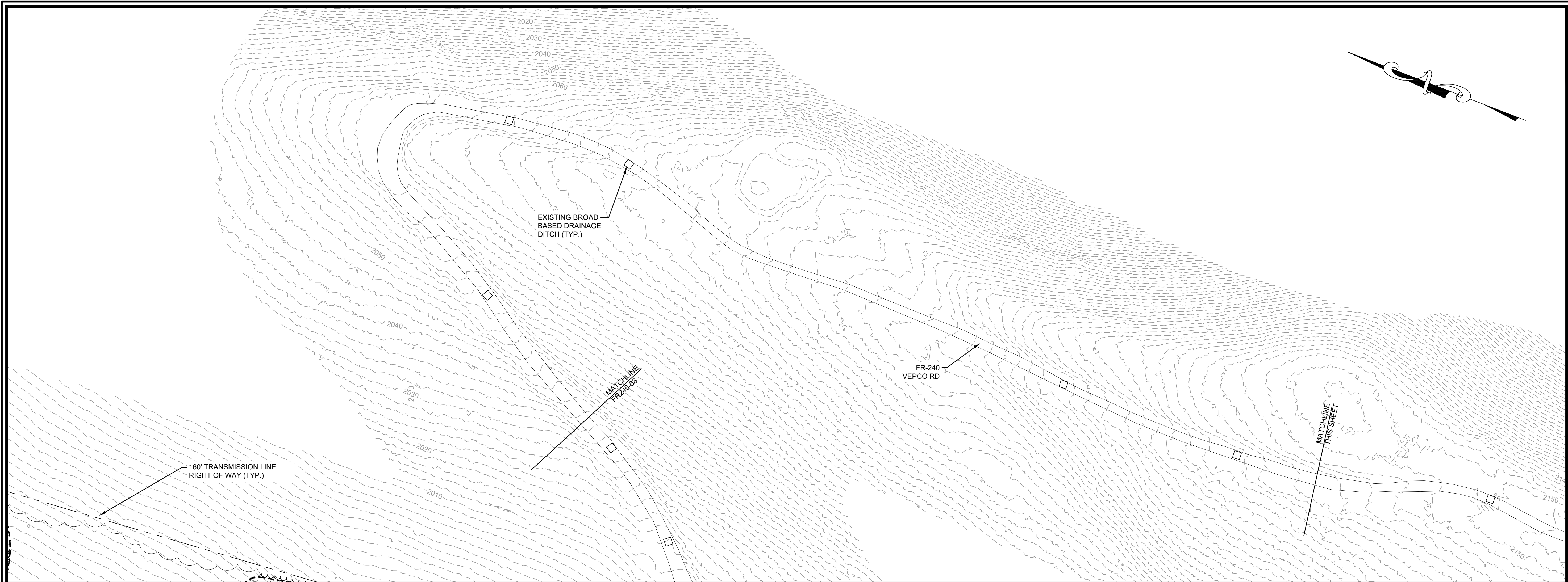
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FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-69

SHEET NO.



E&SC LEGEND

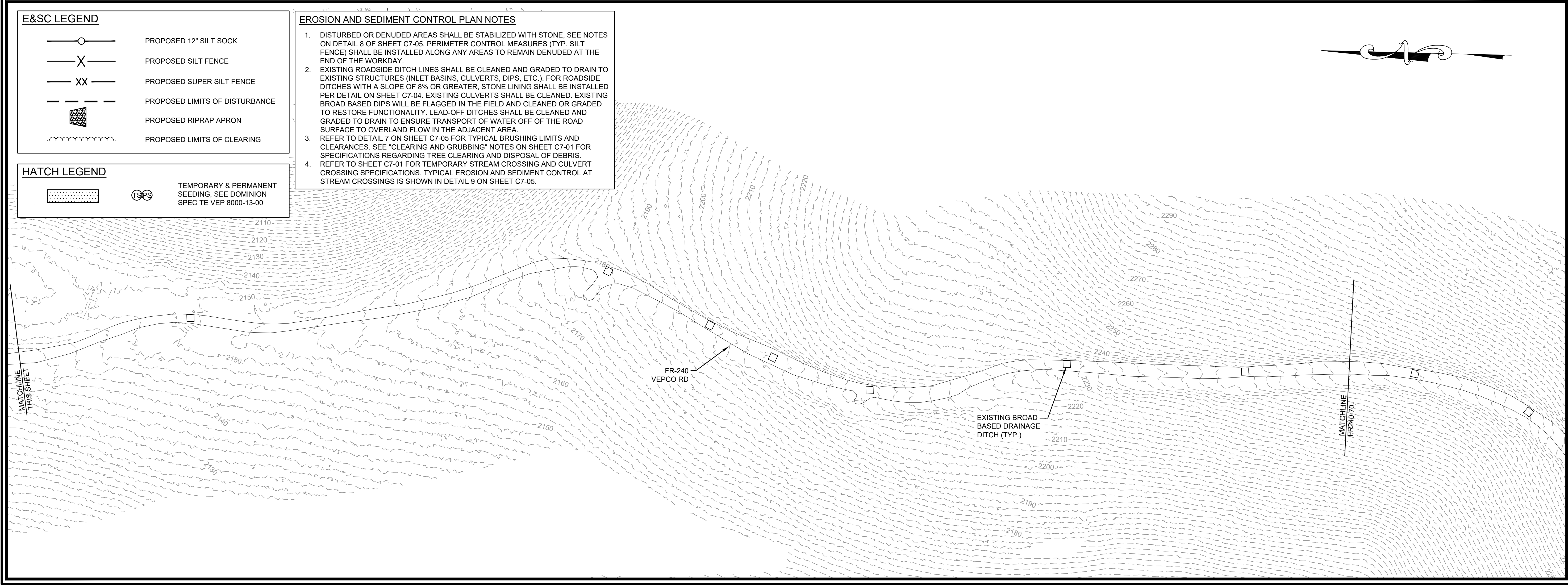
- PROPOSED 12" SILT SOCK
- PROPOSED SILT FENCE
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED RIPRAP APRON
- PROPOSED LIMITS OF CLEARING

HATCH LEGEND

- TEMPORARY & PERMANENT SEEDING. SEE DOMINION SPEC TE VEP 8000-13-00

EROSION AND SEDIMENT CONTROL PLAN NOTES

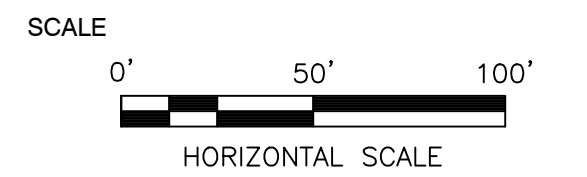
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- EXISTING ROADSIDE DITCH LINES SHALL BE CLEANED AND GRADED TO DRAIN TO EXISTING STRUCTURES (INLET BASINS, CULVERTS, DIPS, ETC.), FOR ROADSIDE DITCHES WITH A SLOPE OF 8% OR GREATER, STONE LINING SHALL BE INSTALLED PER DETAIL ON SHEET C7-04. EXISTING CULVERTS SHALL BE CLEANED. EXISTING BROAD BASED DIPS WILL BE FLAGGED IN THE FIELD AND CLEANED OR GRADED TO RESTORE FUNCTIONALITY. LEAD-OFF DITCHES SHALL BE CLEANED AND GRADED TO DRAIN TO ENSURE TRANSPORT OF WATER OFF OF THE ROAD SURFACE TO OVERLAND FLOW IN THE ADJACENT AREA.
- REFER TO DETAIL 7 ON SHEET C7-05 FOR TYPICAL BRUSHING LIMITS AND CLEARANCES. SEE "CLEARING AND GRUBBING" NOTES ON SHEET C7-01 FOR SPECIFICATIONS REGARDING TREE CLEARING AND DISPOSAL OF DEBRIS.
- REFER TO SHEET C7-01 FOR TEMPORARY STREAM CROSSING AND CULVERT CROSSING SPECIFICATIONS. TYPICAL EROSION AND SEDIMENT CONTROL AT STREAM CROSSINGS IS SHOWN IN DETAIL 9 ON SHEET C7-05.



TRANSMISSION LINE REBUILD
PROJECT TL 550
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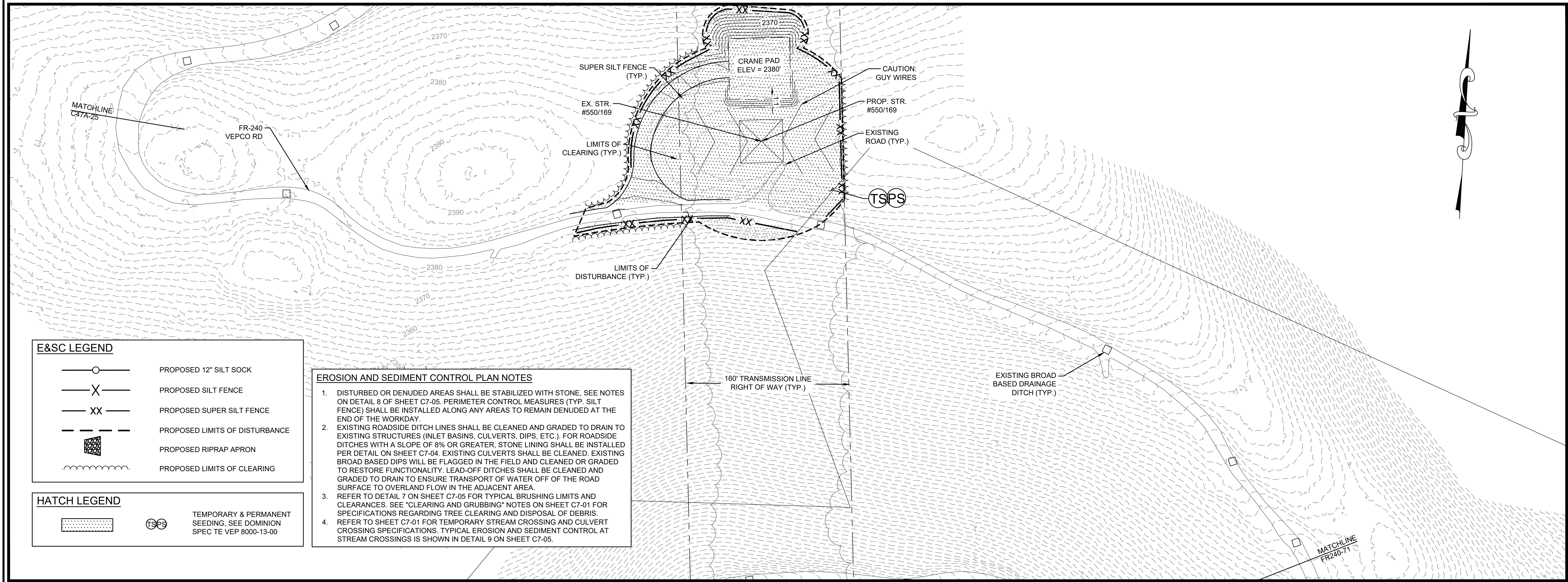
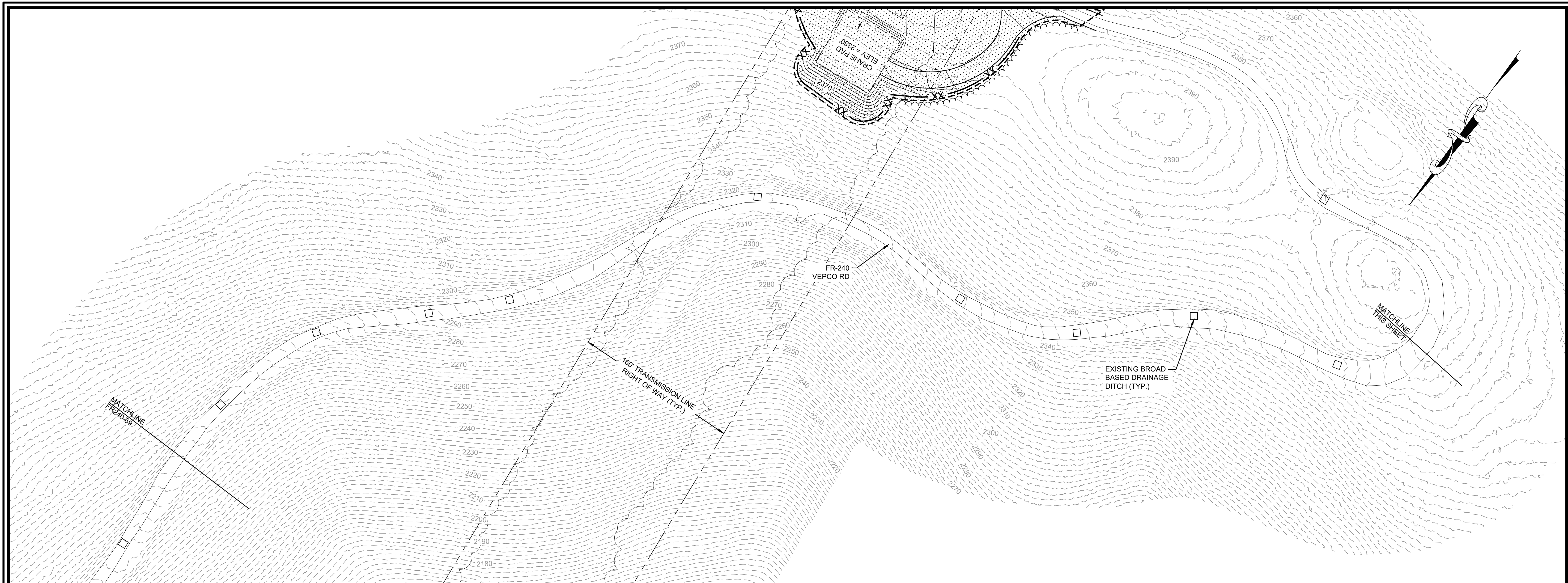
| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-70

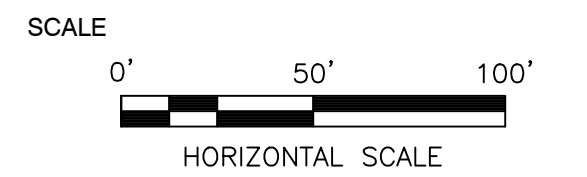
SHEET NO.



TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

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| REVISIONS | |
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |

TITLE

FR-240
VEPCO ROAD
ESC PLAN

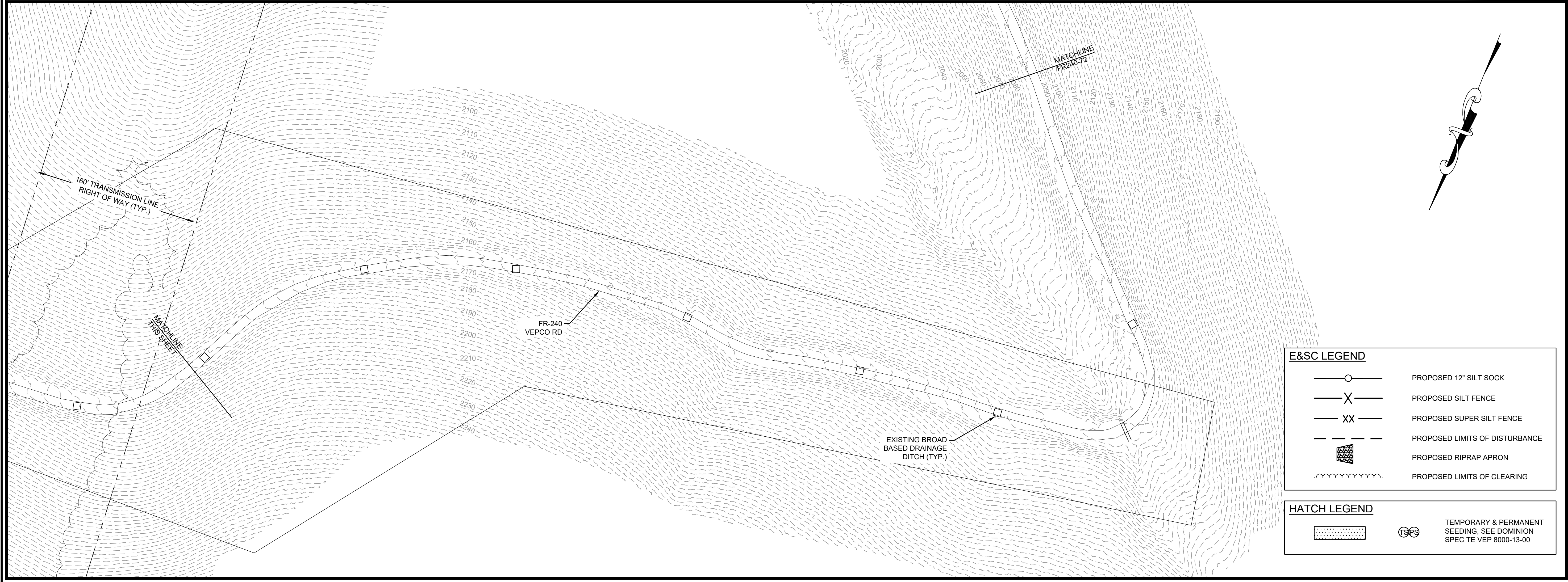
PROJECT NO. 50106442

FR240-71

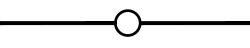


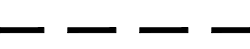


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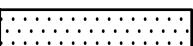
- EROSION AND SEDIMENT CONTROL PLAN NOTES**
1. DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE, SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
 2. EXISTING ROADSIDE DITCH LINES SHALL BE CLEANED AND GRADED TO DRAIN TO EXISTING STRUCTURES (INLET BASINS, CULVERTS, DIPS, ETC.). FOR ROADSIDE DITCHES WITH A SLOPE OF 8% OR GREATER, STONE LINING SHALL BE INSTALLED PER DETAIL ON SHEET C7-04. EXISTING CULVERTS SHALL BE CLEANED. EXISTING BROAD BASED DIPS WILL BE FLAGGED IN THE FIELD AND CLEANED OR GRADED TO RESTORE FUNCTIONALITY. LEAD-OFF DITCHES SHALL BE CLEANED AND GRADED TO DRAIN TO ENSURE TRANSPORT OF WATER OFF OF THE ROAD SURFACE TO OVERLAND FLOW IN THE ADJACENT AREA.
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 4. REFER TO SHEET C7-01 FOR TEMPORARY STREAM CROSSING AND CULVERT CROSSING SPECIFICATIONS. TYPICAL EROSION AND SEDIMENT CONTROL AT STREAM CROSSINGS IS SHOWN IN DETAIL 9 ON SHEET C7-05.



E&SC LEGEND

| | |
|---|--------------------------------|
|  | PROPOSED 12" SILT SOCK |
|  | PROPOSED SILT FENCE |
|  | PROPOSED SUPER SILT FENCE |
|  | PROPOSED LIMITS OF DISTURBANCE |
|  | PROPOSED RIPRAP APRON |
|  | PROPOSED LIMITS OF CLEARING |

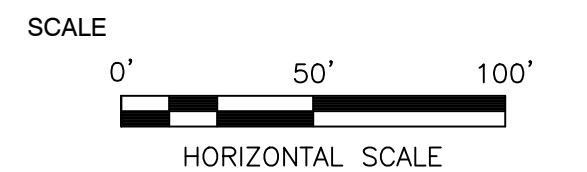
HATCH LEGEND

| | |
|---|--|
|  | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |
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TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |

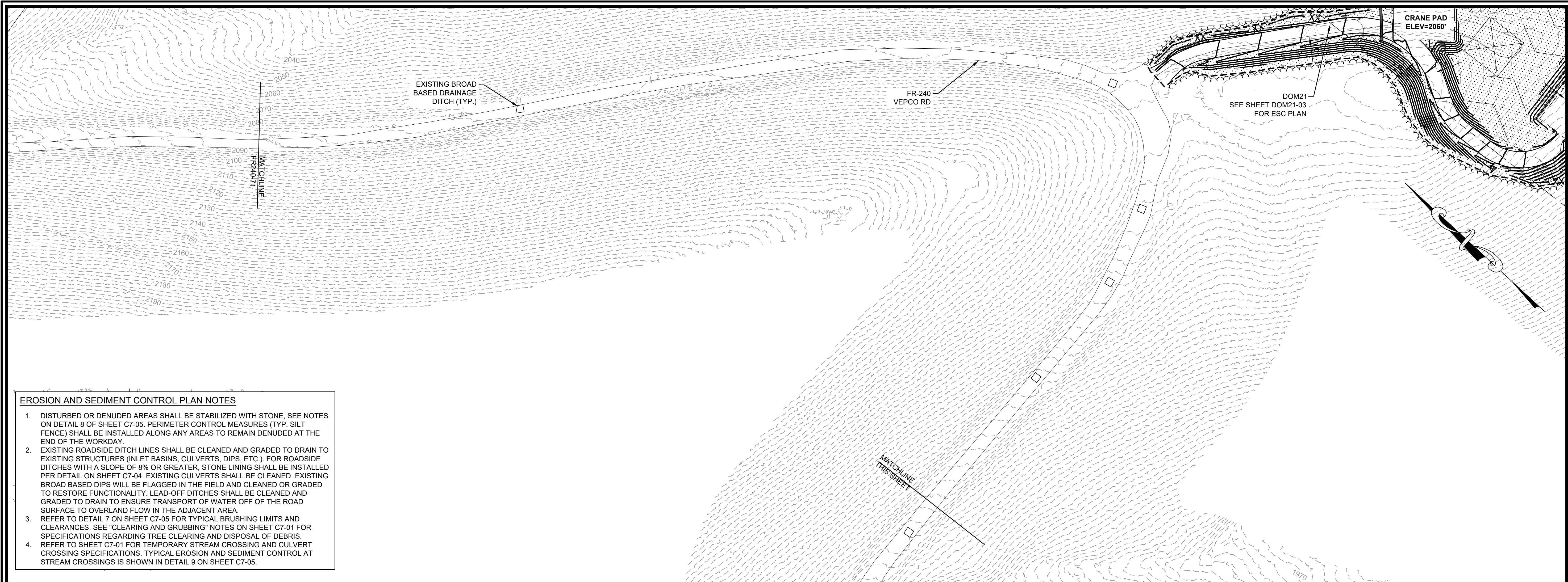
TITLE

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

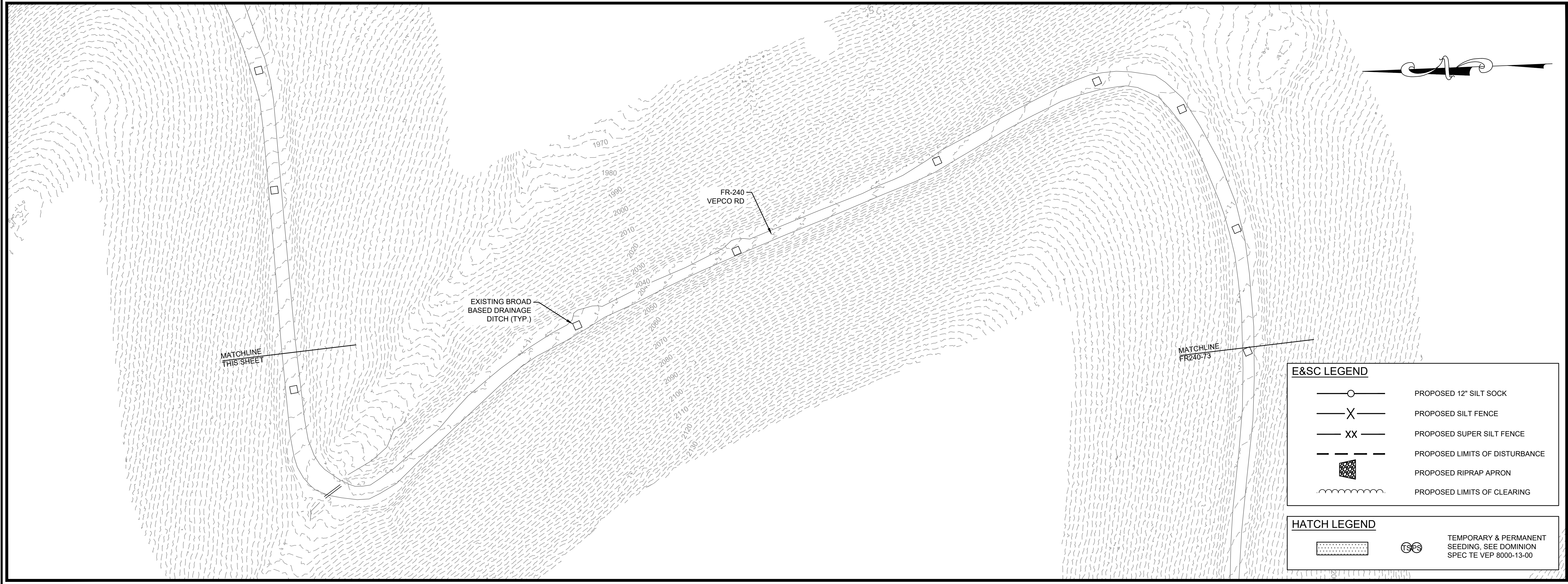
FR240-72

SHEET NO.



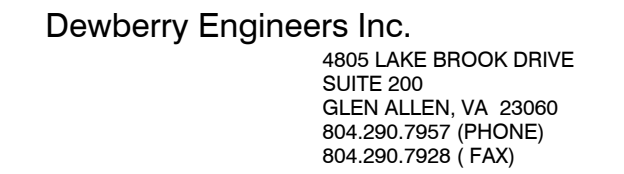
EROSION AND SEDIMENT CONTROL PLAN NOTES

1. DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE, SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
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3. REFER TO DETAIL 7 ON SHEET C7-05 FOR TYPICAL BRUSHING LIMITS AND CLEARANCES. SEE "CLEARING AND GRUBBING" NOTES ON SHEET C7-01 FOR SPECIFICATIONS REGARDING TREE CLEARING AND DISPOSAL OF DEBRIS.
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| E&SC LEGEND | |
|-------------|--------------------------------|
| | PROPOSED 12" SILT SOCK |
| | PROPOSED SILT FENCE |
| | PROPOSED SUPER SILT FENCE |
| | PROPOSED LIMITS OF DISTURBANCE |
| | PROPOSED RIPRAP APRON |
| | PROPOSED LIMITS OF CLEARING |

| HATCH LEGEND | |
|--------------|--|
| | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |



SEAL

SCALE

0' 50' 100'

HORIZONTAL SCALE

REVISIONS

DRAWN BY JDE

APPROVED BY _____

CHECKED BY ARB

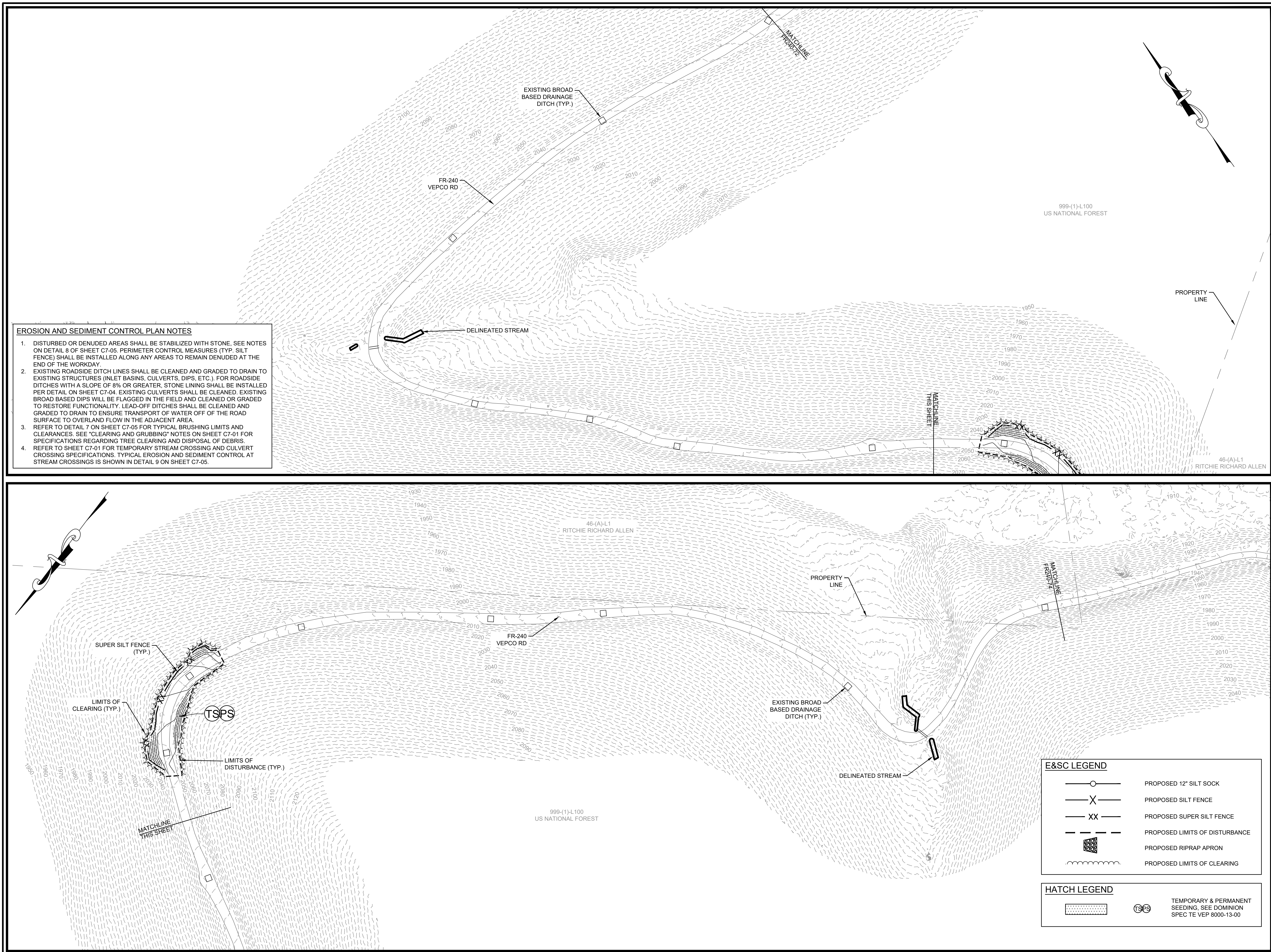
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FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-73

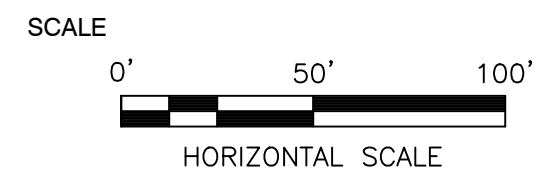
SHEET NO.



TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
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| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |

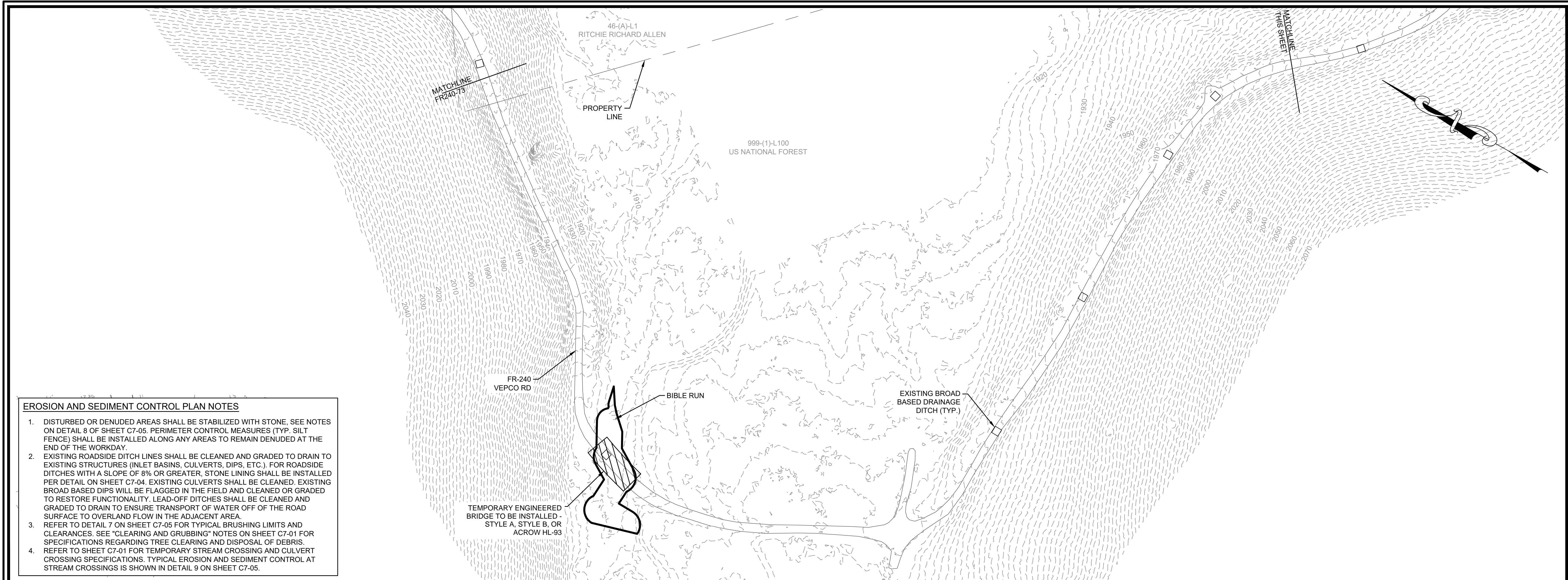
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FR-240
VEPCO ROAD
ESC PLAN

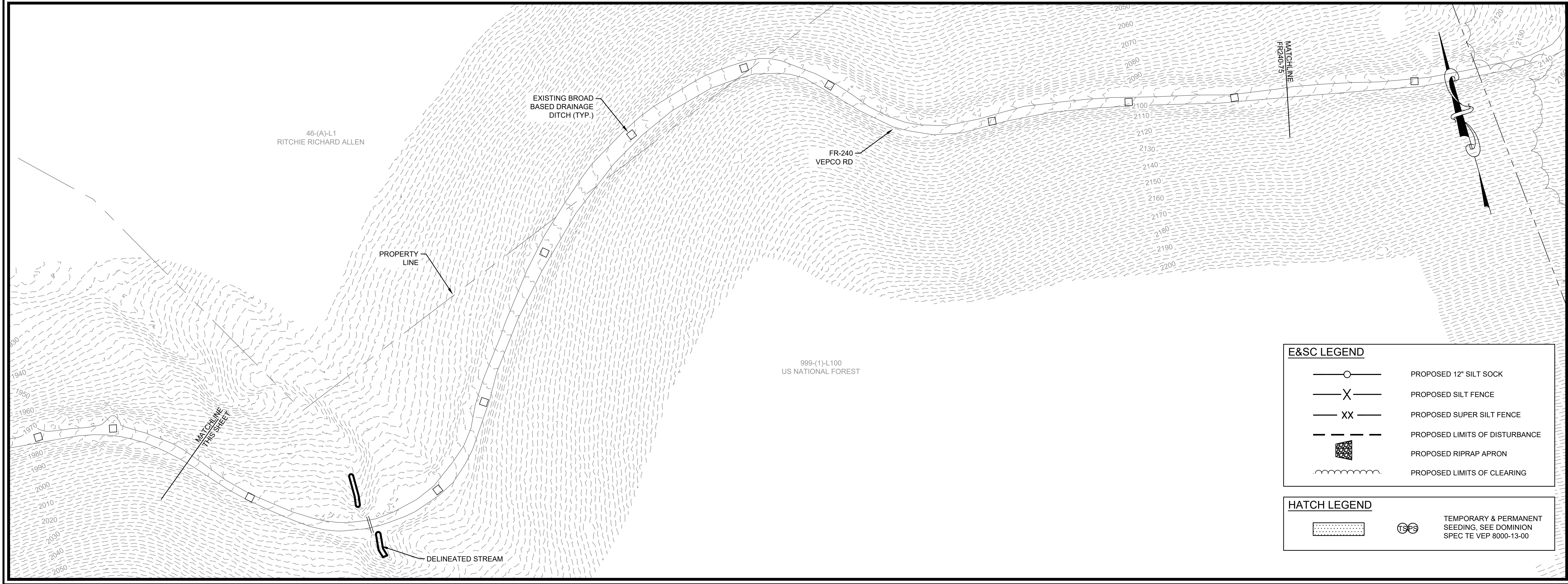
PROJECT NO. 50106442

FR240-74

SHEET NO.



- EROSION AND SEDIMENT CONTROL PLAN NOTES**
1. DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE, SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
 2. EXISTING ROADSIDE DITCH LINES SHALL BE CLEANED AND GRADED TO DRAIN TO EXISTING STRUCTURES (INLET BASINS, CULVERTS, DIPS, ETC.). FOR ROADSIDE DITCHES WITH A SLOPE OF 8% OR GREATER, STONE LINING SHALL BE INSTALLED PER DETAIL ON SHEET C7-04. EXISTING CULVERTS SHALL BE CLEANED. EXISTING BROAD BASED DIPS WILL BE FLAGGED IN THE FIELD AND CLEANED OR GRADED TO RESTORE FUNCTIONALITY. LEAD-OFF DITCHES SHALL BE CLEANED AND GRADED TO DRAIN TO ENSURE TRANSPORT OF WATER OFF OF THE ROAD SURFACE TO OVERLAND FLOW IN THE ADJACENT AREA.
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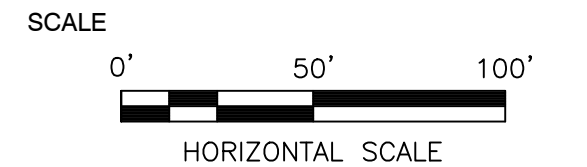
| E&SC LEGEND | |
|-------------|--------------------------------|
| | PROPOSED 12" SILT SOCK |
| | PROPOSED SILT FENCE |
| | PROPOSED SUPER SILT FENCE |
| | PROPOSED LIMITS OF DISTURBANCE |
| | PROPOSED RIPRAP APRON |
| | PROPOSED LIMITS OF CLEARING |

| HATCH LEGEND | |
|--------------|--|
| | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

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| REVISIONS | |
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

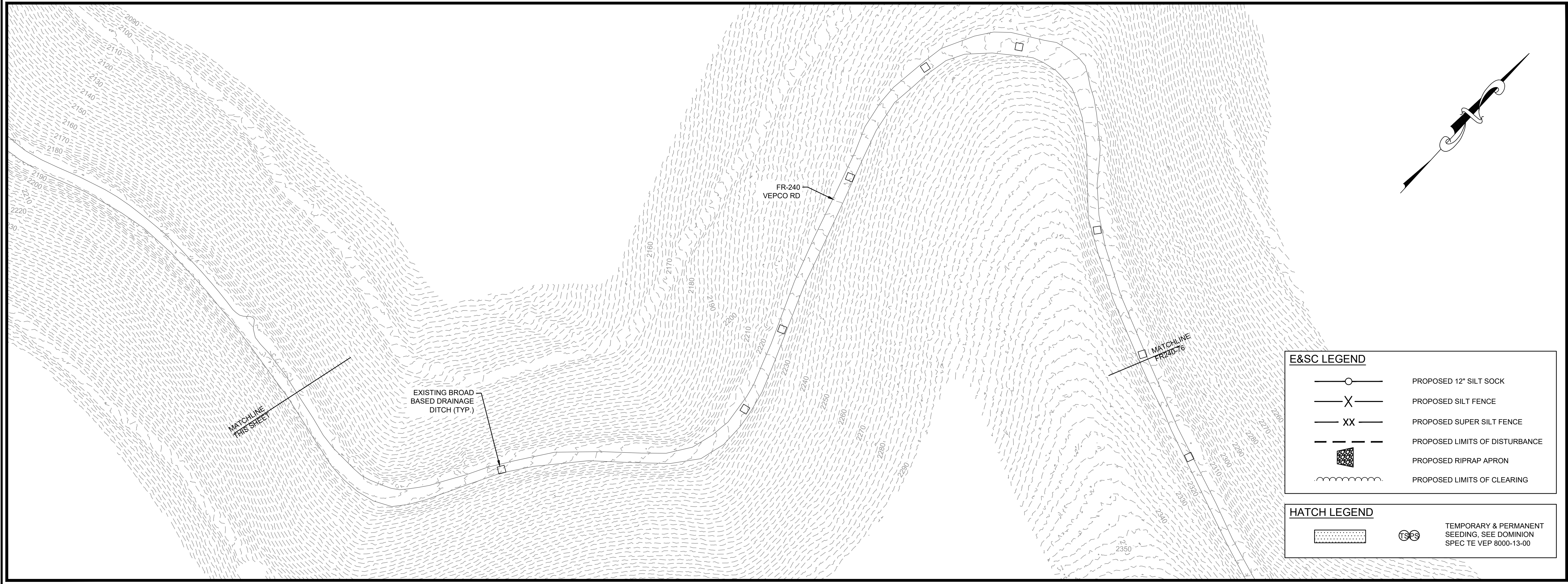
FR240-75

SHEET NO.



EROSION AND SEDIMENT CONTROL PLAN NOTES

1. DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE, SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
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3. REFER TO DETAIL 7 ON SHEET C7-05 FOR TYPICAL BRUSHING LIMITS AND CLEARANCES. SEE "CLEARING AND GRUBBING" NOTES ON SHEET C7-01 FOR SPECIFICATIONS REGARDING TREE CLEARING AND DISPOSAL OF DEBRIS.
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E&SC LEGEND

- | | |
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| | PROPOSED 12" SILT SOCK |
| | PROPOSED SILT FENCE |
| | PROPOSED SUPER SILT FENCE |
| | PROPOSED LIMITS OF DISTURBANCE |
| | PROPOSED RIPRAP APRON |
| | PROPOSED LIMITS OF CLEARING |

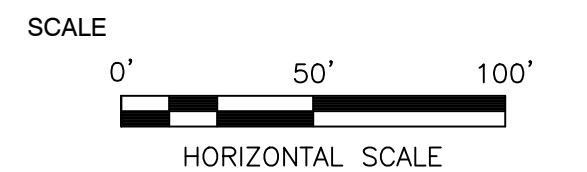
HATCH LEGEND

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| | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |
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TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

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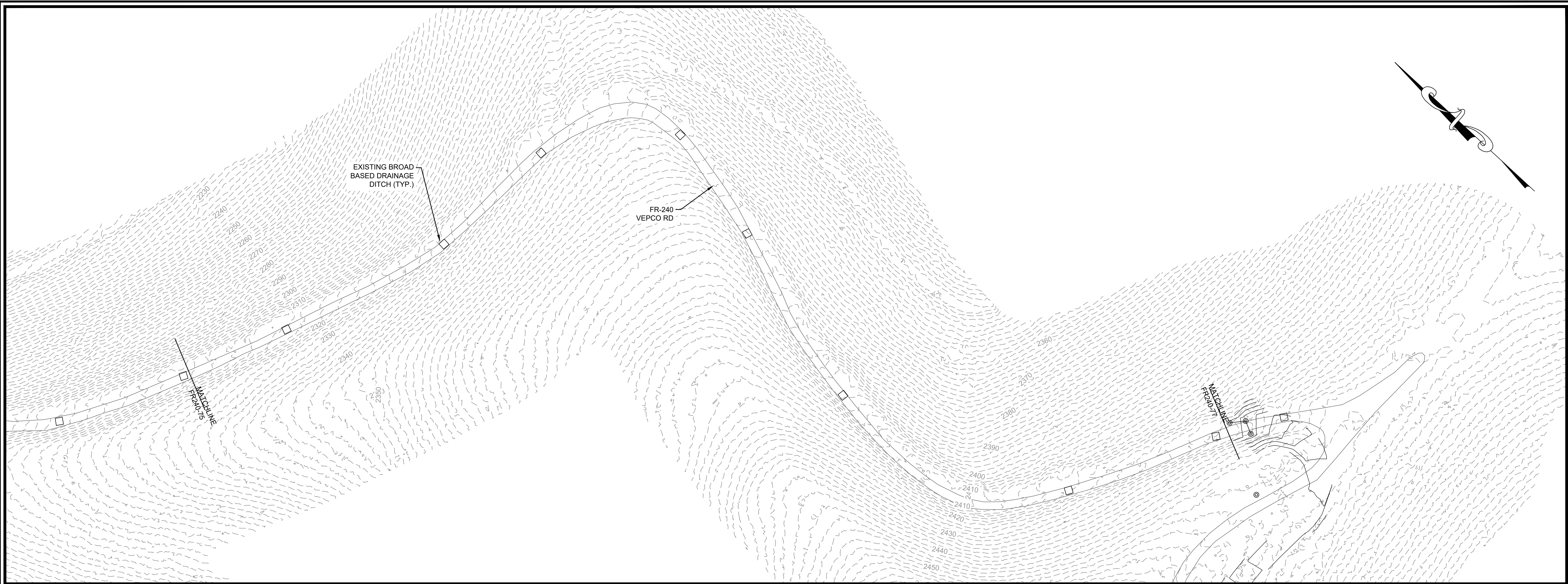
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-76

SHEET NO.



EROSION AND SEDIMENT CONTROL PLAN NOTES

- DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE, SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
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E&SC LEGEND

- PROPOSED 12" SILT SOCK
- PROPOSED SILT FENCE
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED RIPRAP APRON
- PROPOSED LIMITS OF CLEARING

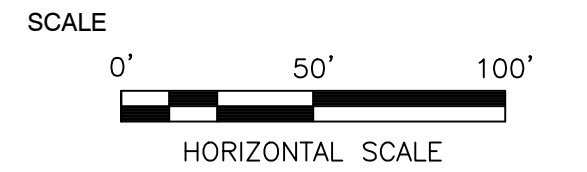
HATCH LEGEND

- TEMPORARY & PERMANENT SEEDING. SEE DOMINION SPEC TE VEP 8000-13-00

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PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

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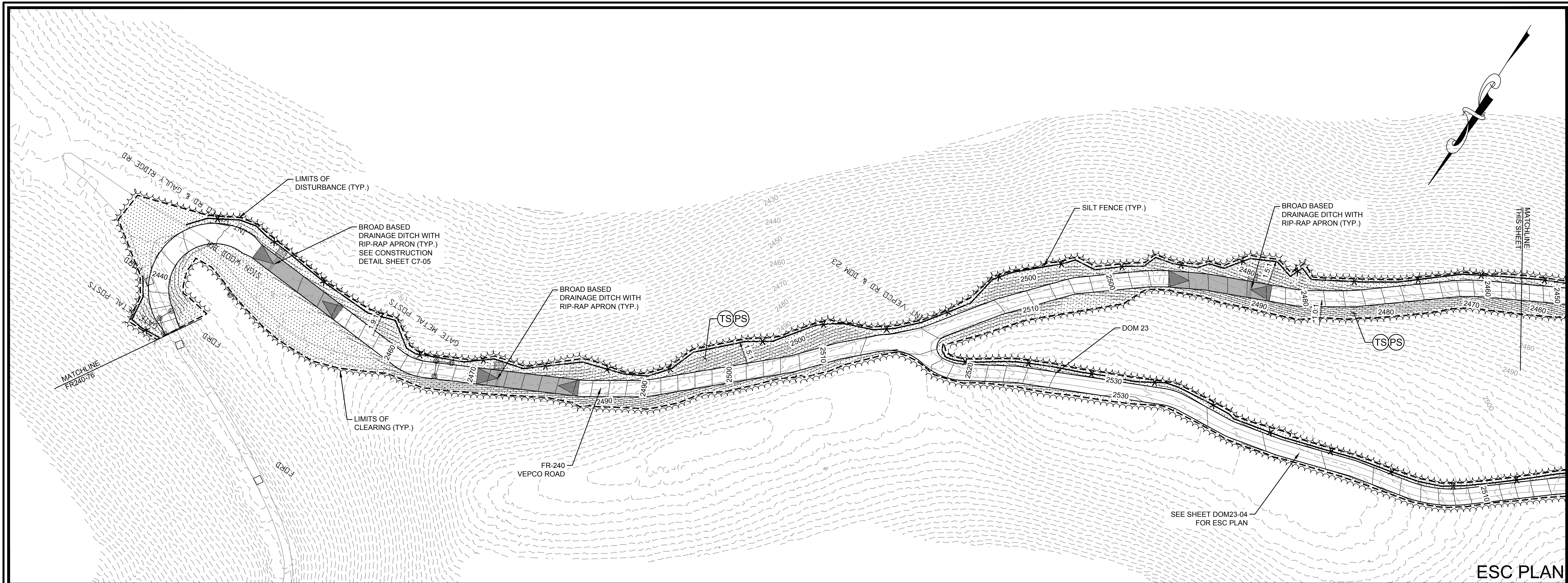
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| DRAWN BY | JDE |
| APPROVED BY | |
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| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-77

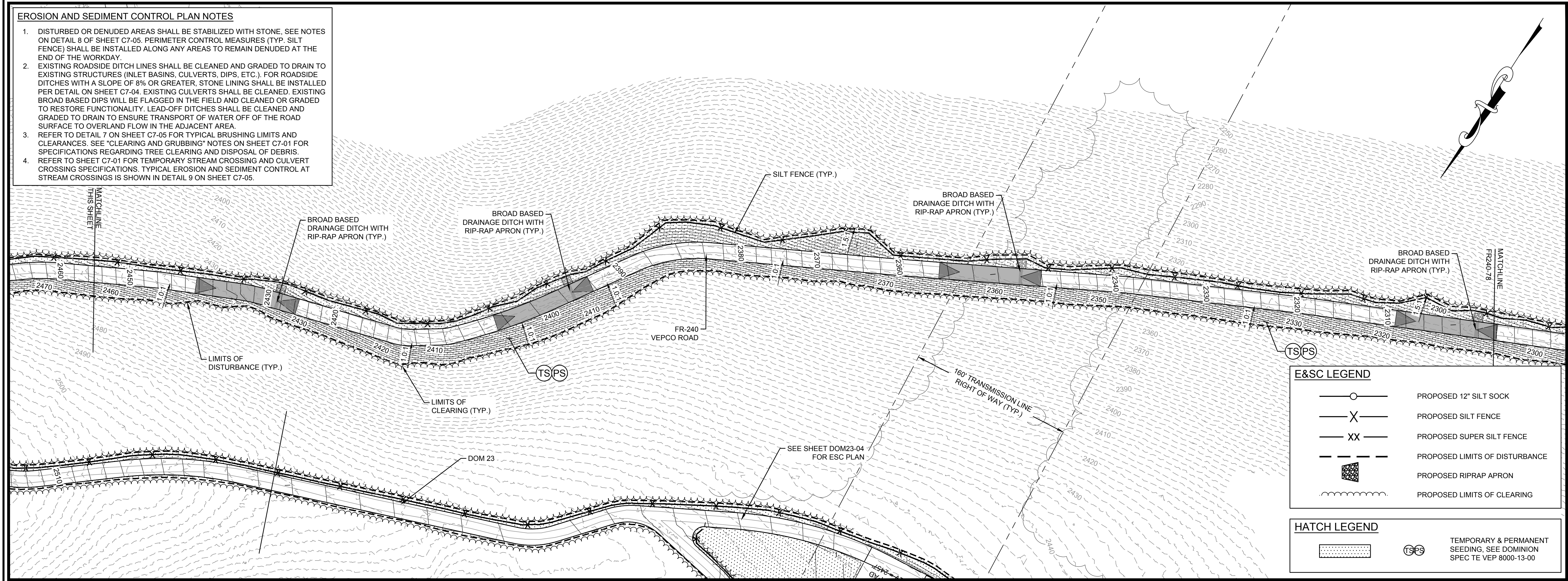
SHEET NO.



ESC PLAN

EROSION AND SEDIMENT CONTROL PLAN NOTES

1. DISTURBED OR DENUDEED AREAS SHALL BE STABILIZED WITH STONE. SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDEED AT THE END OF THE WORKDAY.
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E&SC LEGEND

- | | |
|-------|--------------------------------|
| ○ | PROPOSED 12" SILT SOCK |
| —X— | PROPOSED SILT FENCE |
| —XX— | PROPOSED SUPER SILT FENCE |
| - - - | PROPOSED LIMITS OF DISTURBANCE |
| ■ | PROPOSED RIPRAP APRON |
| ~~~~~ | PROPOSED LIMITS OF CLEARING |

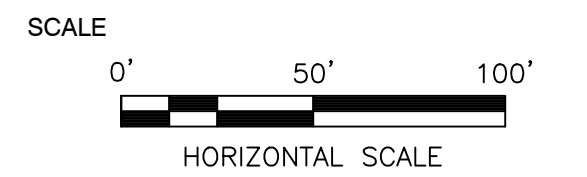
HATCH LEGEND

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| ■ | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |
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TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
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| REVISIONS | |
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |

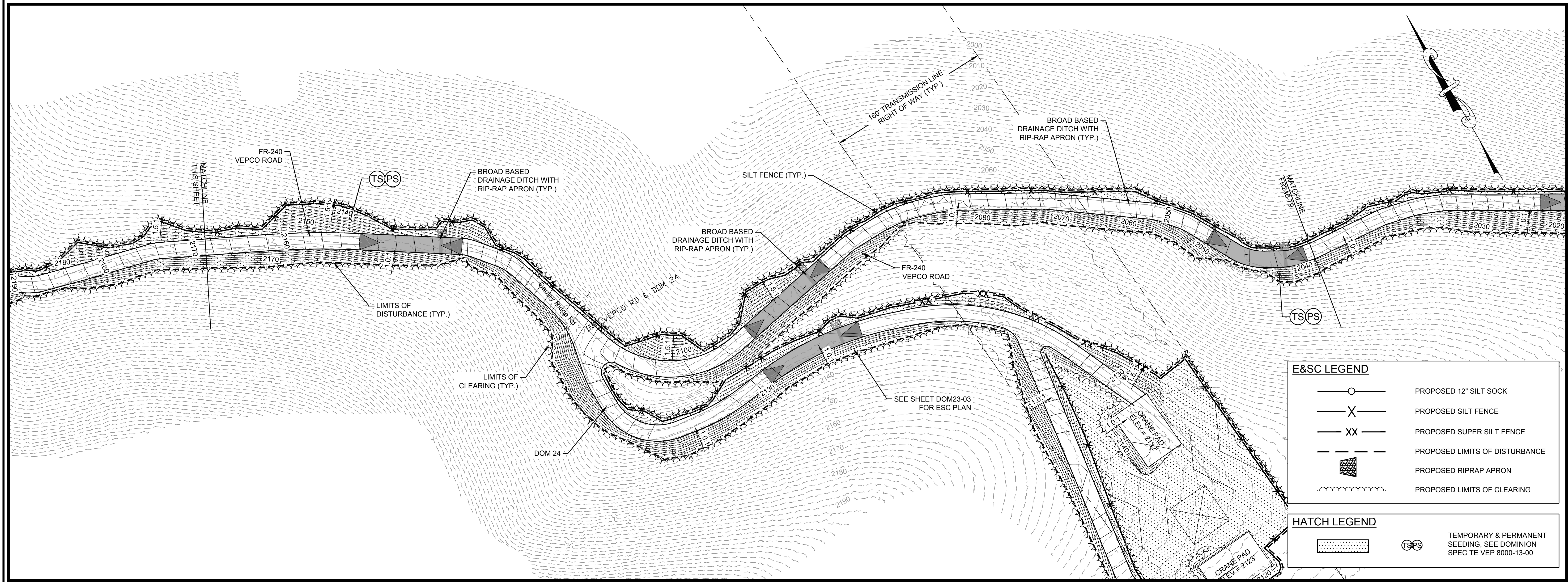
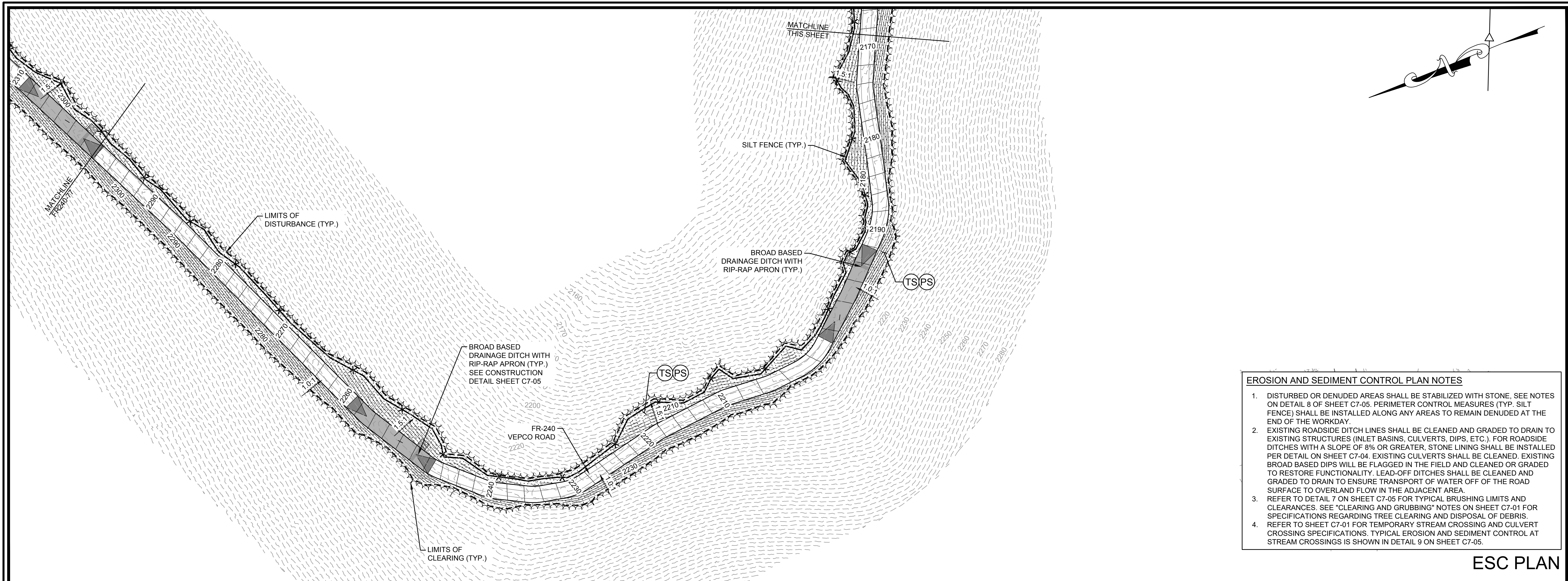
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FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-78

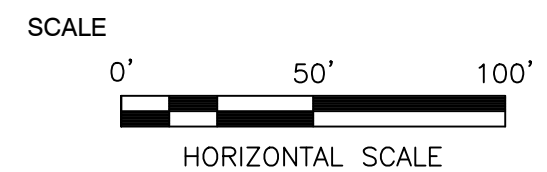
SHEET NO.



TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

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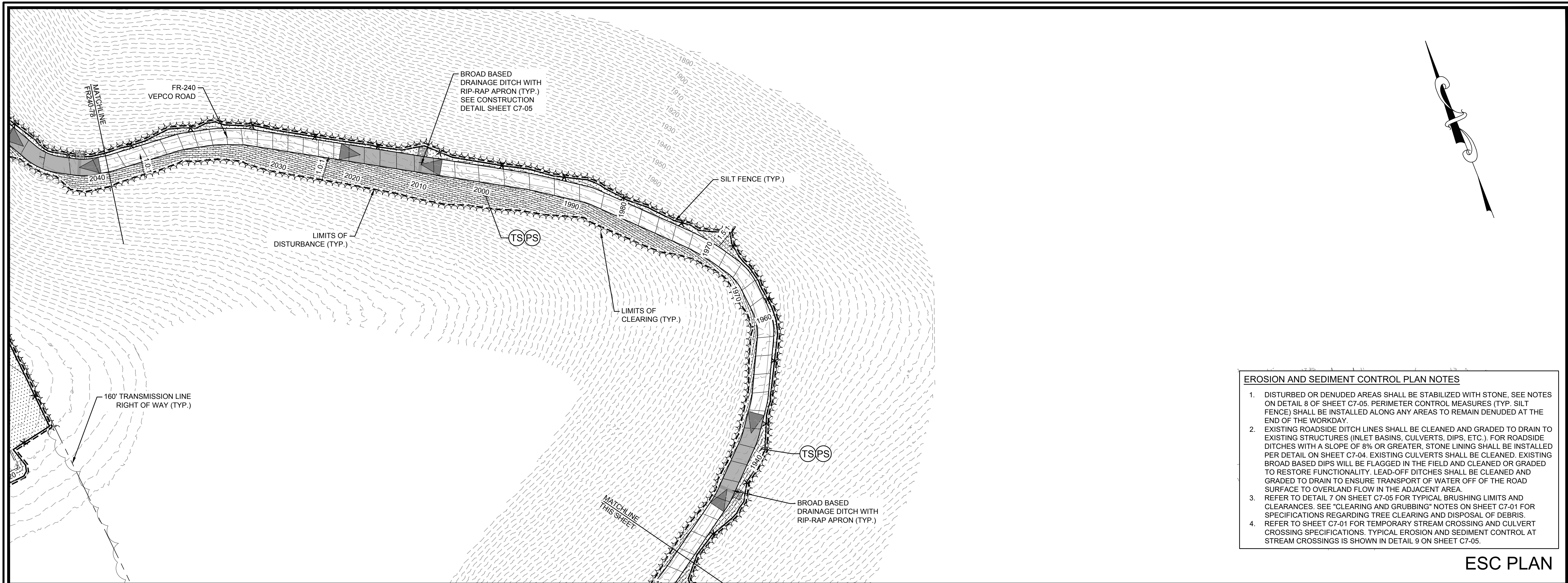
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| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

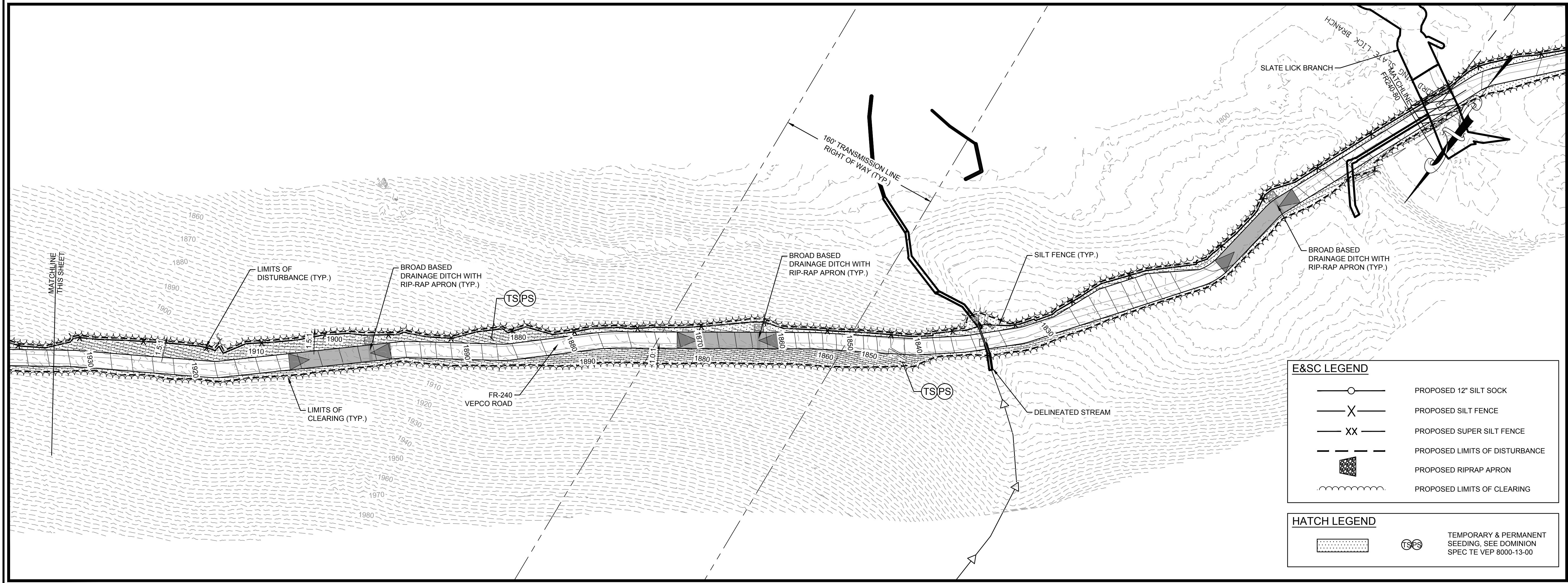
FR240-79

SHEET NO.



- EROSION AND SEDIMENT CONTROL PLAN NOTES**
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 2. EXISTING ROADSIDE DITCH LINES SHALL BE CLEANED AND GRADED TO DRAIN TO EXISTING STRUCTURES (INLET BASINS, CULVERTS, DIPS, ETC.). FOR ROADSIDE DITCHES WITH A SLOPE OF 8% OR GREATER, STONE LINING SHALL BE INSTALLED PER DETAIL ON SHEET C7-04. EXISTING CULVERTS SHALL BE CLEANED. EXISTING BROAD BASED DIPS WILL BE FLAGGED IN THE FIELD AND CLEANED OR GRADED TO RESTORE FUNCTIONALITY. LEAD-OFF DITCHES SHALL BE CLEANED AND GRADED TO DRAIN TO ENSURE TRANSPORT OF WATER OFF OF THE ROAD SURFACE TO OVERLAND FLOW IN THE ADJACENT AREA.
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 4. REFER TO SHEET C7-01 FOR TEMPORARY STREAM CROSSING AND CULVERT CROSSING SPECIFICATIONS. TYPICAL EROSION AND SEDIMENT CONTROL AT STREAM CROSSINGS IS SHOWN IN DETAIL 9 ON SHEET C7-05.

ESC PLAN



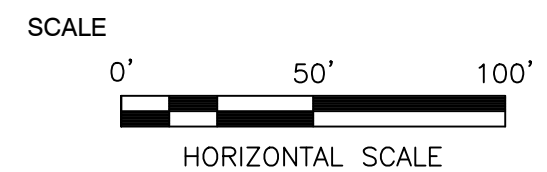
| E&SC LEGEND | |
|-------------|--------------------------------|
| | PROPOSED 12" SILT SOCK |
| | PROPOSED SILT FENCE |
| | PROPOSED SUPER SILT FENCE |
| | PROPOSED LIMITS OF DISTURBANCE |
| | PROPOSED RIPRAP APRON |
| | PROPOSED LIMITS OF CLEARING |

| HATCH LEGEND | |
|--------------|--|
| | TEMPORARY & PERMANENT SEEDING. SEE DOMINION SPEC TE VEP 8000-13-00 |

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION



| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |

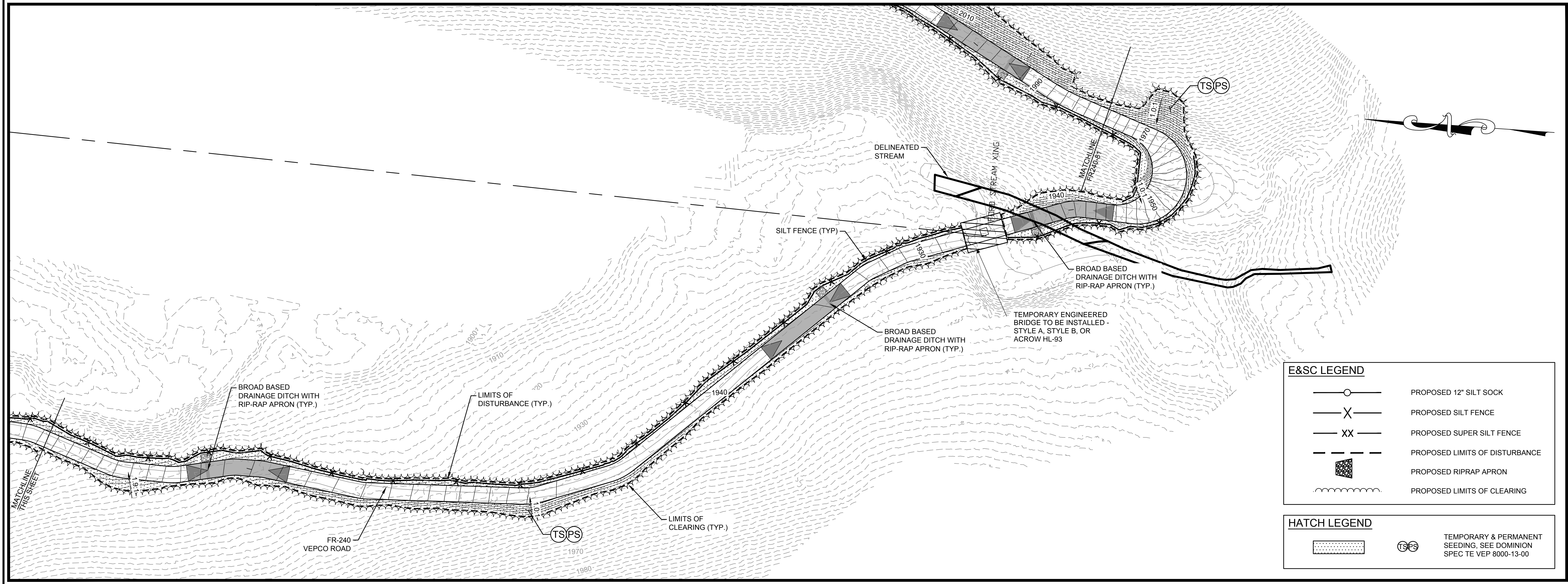
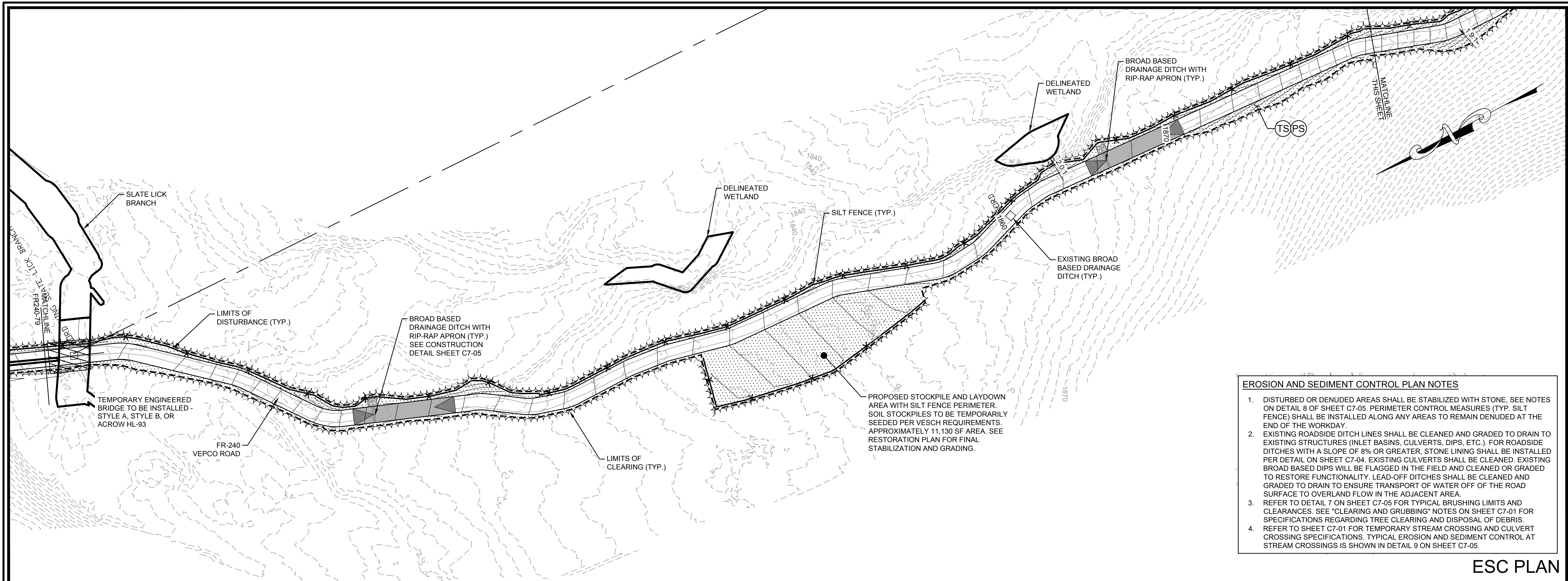
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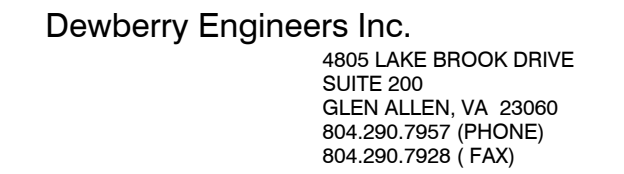
FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-80

SHEET NO.






SEAL

SCALE

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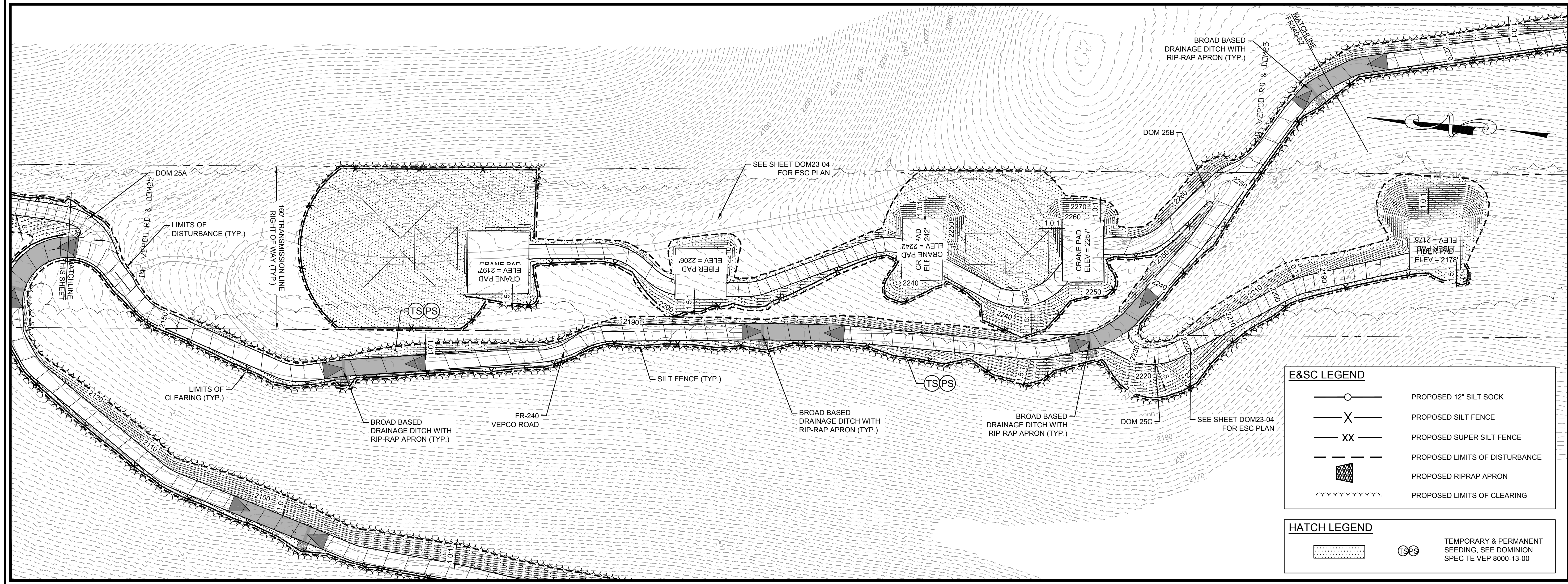


HORIZONTAL SCALE

TITLE _____

PROJECT NO. 50106442

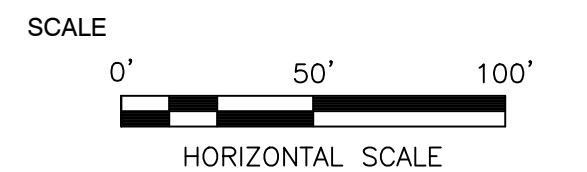
SHEET NO. _____



TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION



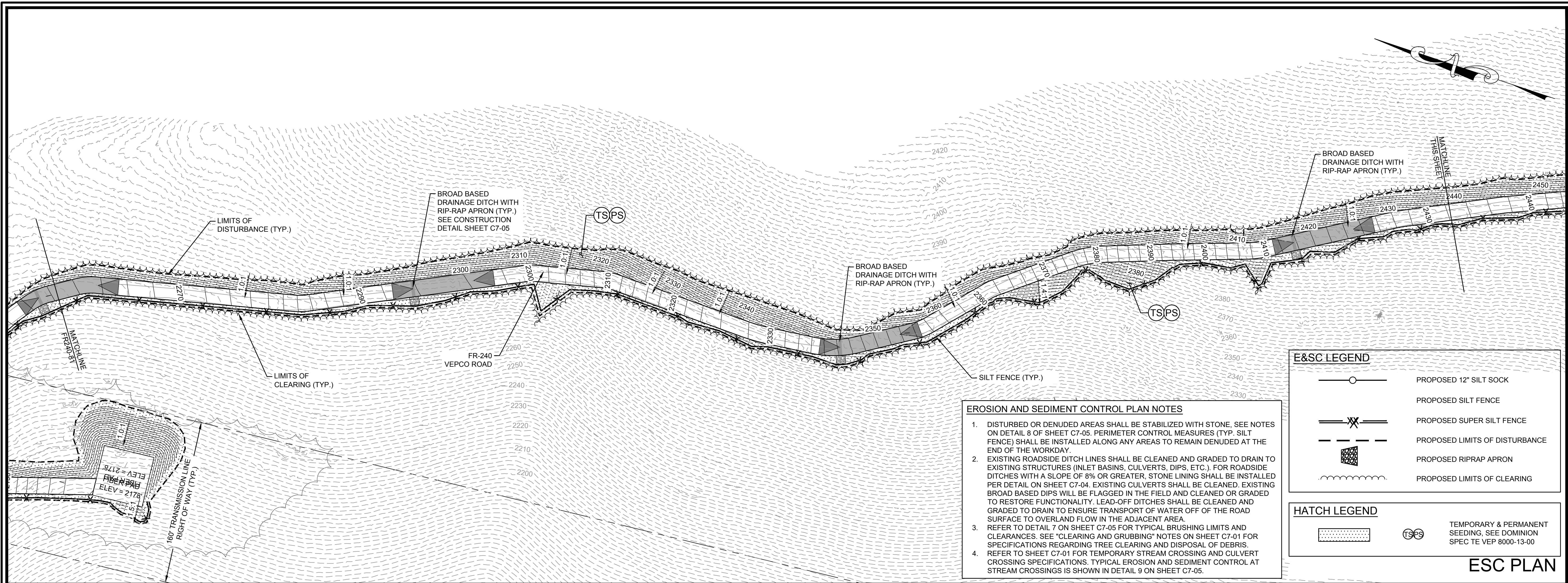
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|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-82

SHEET NO.

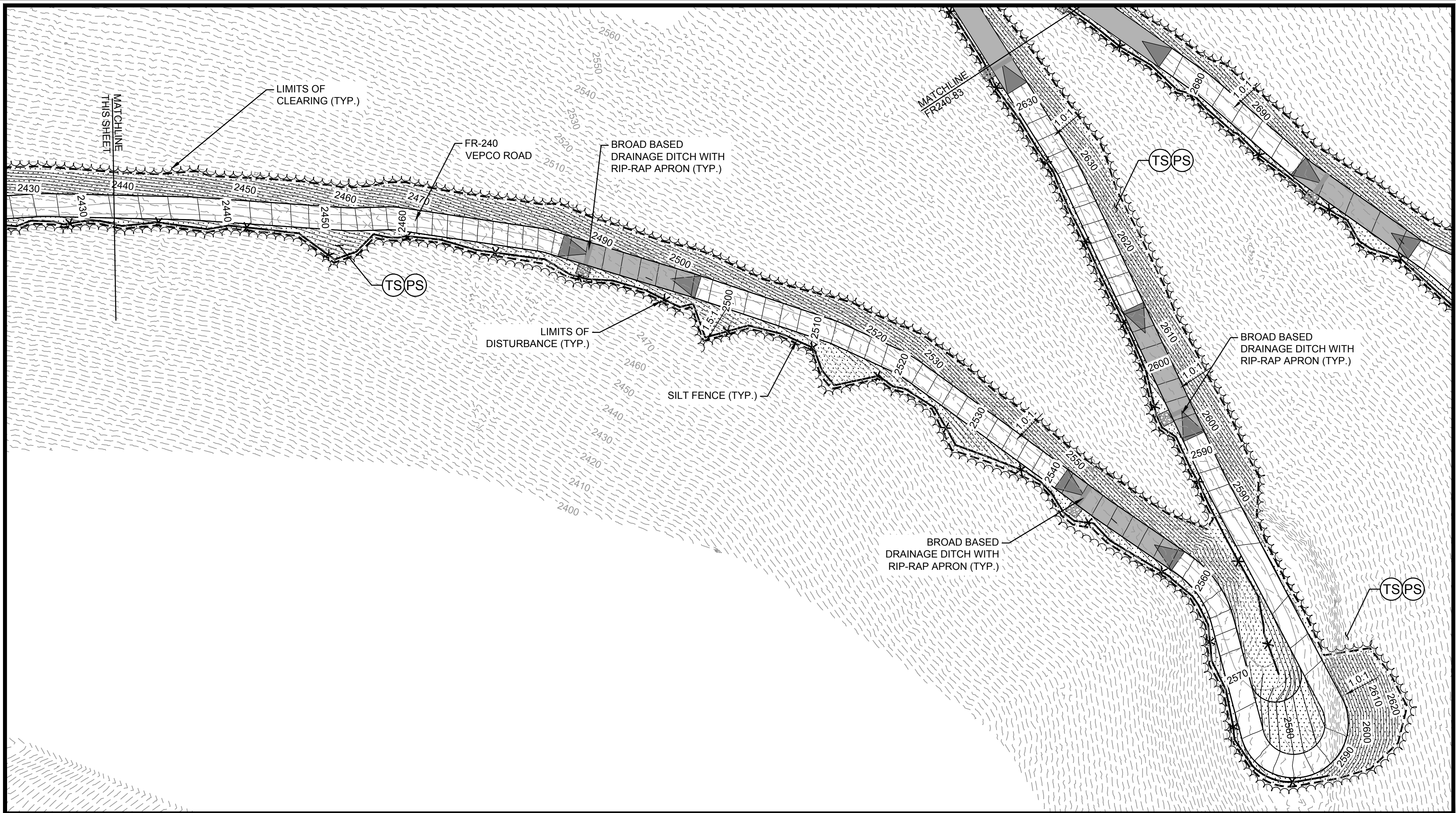


- EROSION AND SEDIMENT CONTROL PLAN NOTES**
- DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE, SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
 - EXISTING ROADSIDE DITCH LINES SHALL BE CLEANED AND GRADED TO DRAIN TO EXISTING STRUCTURES (INLET BASINS, CULVERTS, DIPS, ETC.). FOR ROADSIDE DITCHES WITH A SLOPE OF 8% OR GREATER, STONE LINING SHALL BE INSTALLED PER DETAIL ON SHEET C7-04. EXISTING CULVERTS SHALL BE CLEANED. EXISTING BROAD BASED DIPS WILL BE FLAGGED IN THE FIELD AND CLEANED OR GRADED TO RESTORE FUNCTIONALITY. LEAD-OFF DITCHES SHALL BE CLEANED AND GRADED TO DRAIN TO ENSURE TRANSPORT OF WATER OFF OF THE ROAD SURFACE TO OVERLAND FLOW IN THE ADJACENT AREA.
 - REFER TO DETAIL 7 ON SHEET C7-05 FOR TYPICAL BRUSHING LIMITS AND CLEARANCES. SEE "CLEARING AND GRUBBING" NOTES ON SHEET C7-01 FOR SPECIFICATIONS REGARDING TREE CLEARING AND DISPOSAL OF DEBRIS.
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| E&SC LEGEND | |
|-------------|--------------------------------|
| | PROPOSED 12" SILT SOCK |
| | PROPOSED SILT FENCE |
| | PROPOSED SUPER SILT FENCE |
| | PROPOSED LIMITS OF DISTURBANCE |
| | PROPOSED RIPRAP APRON |
| | PROPOSED LIMITS OF CLEARING |

| HATCH LEGEND | |
|--------------|--|
| | TEMPORARY & PERMANENT SEEDING. SEE DOMINION SPEC TE VEP 8000-13-00 |
| | TS/PS |

ESC PLAN



TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION

SCALE
0' 50' 100'
HORIZONTAL SCALE

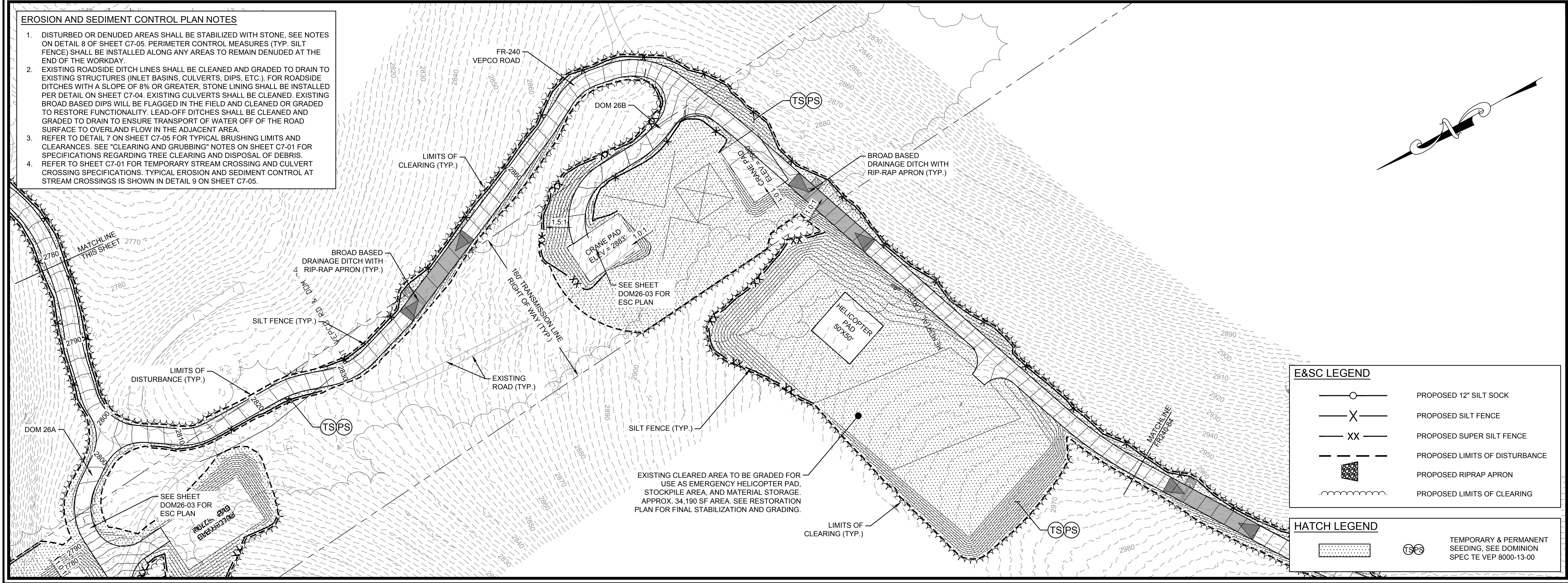
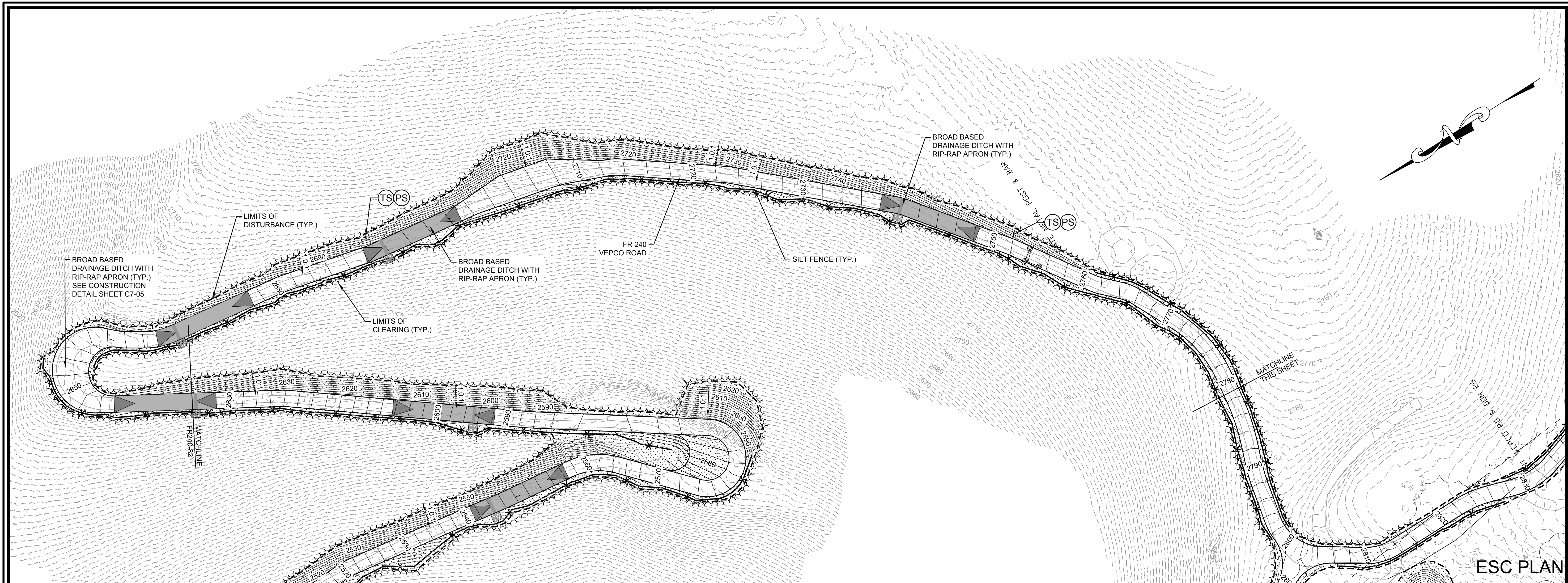
REVISIONS
DRAWN BY JDE
APPROVED BY
CHECKED BY ARB
DATE 07/30/21
TITLE

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-83

SHEET NO.



EROSION AND SEDIMENT CONTROL PLAN NOTES

1. DISTURBED OR DENUDED AREAS SHALL BE STABILIZED WITH STONE, SEE NOTES ON DETAIL 8 OF SHEET C7-05. PERIMETER CONTROL MEASURES (TYP. SILT FENCE) SHALL BE INSTALLED ALONG ANY AREAS TO REMAIN DENUDED AT THE END OF THE WORKDAY.
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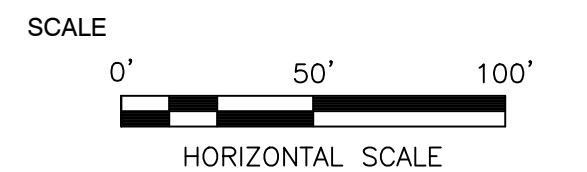
| E&SC LEGEND | |
|-------------|--------------------------------|
| | PROPOSED 12' SILT SOCK |
| | PROPOSED SILT FENCE |
| | PROPOSED SUPER SILT FENCE |
| | PROPOSED LIMITS OF DISTURBANCE |
| | PROPOSED RIPRAP APRON |
| | PROPOSED LIMITS OF CLEARING |

| HATCH LEGEND | |
|--------------|--|
| | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION



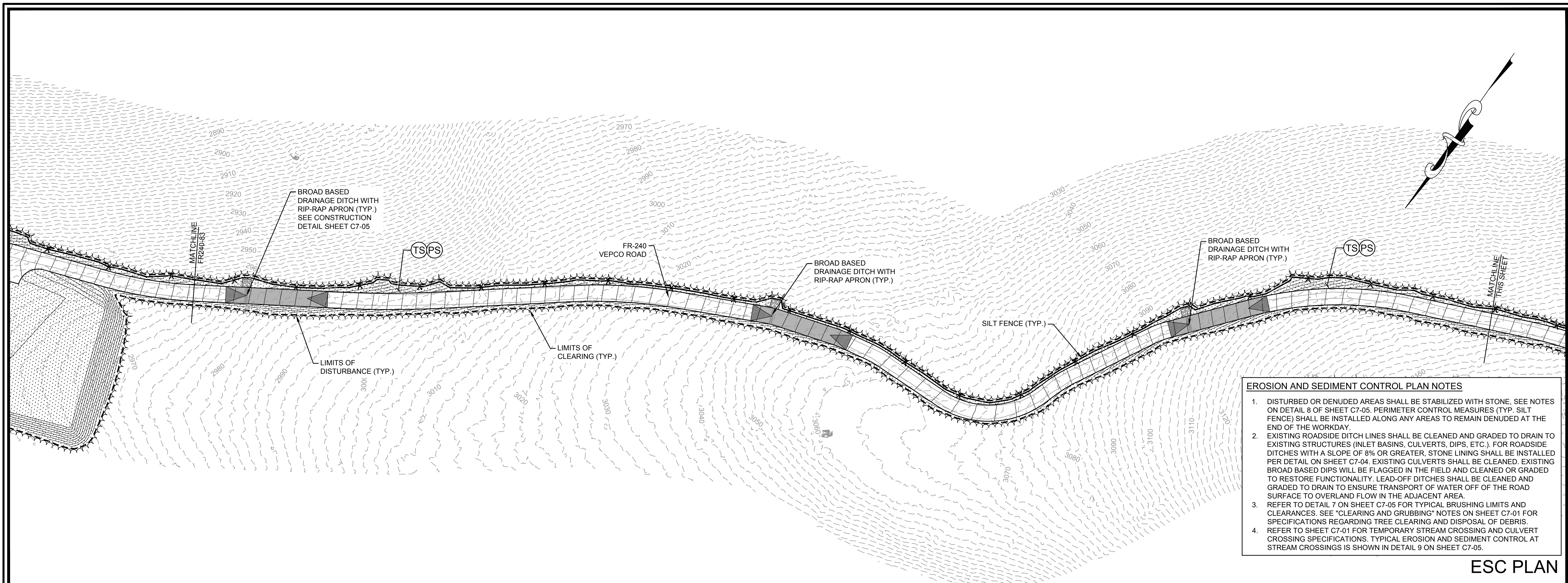
| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-84

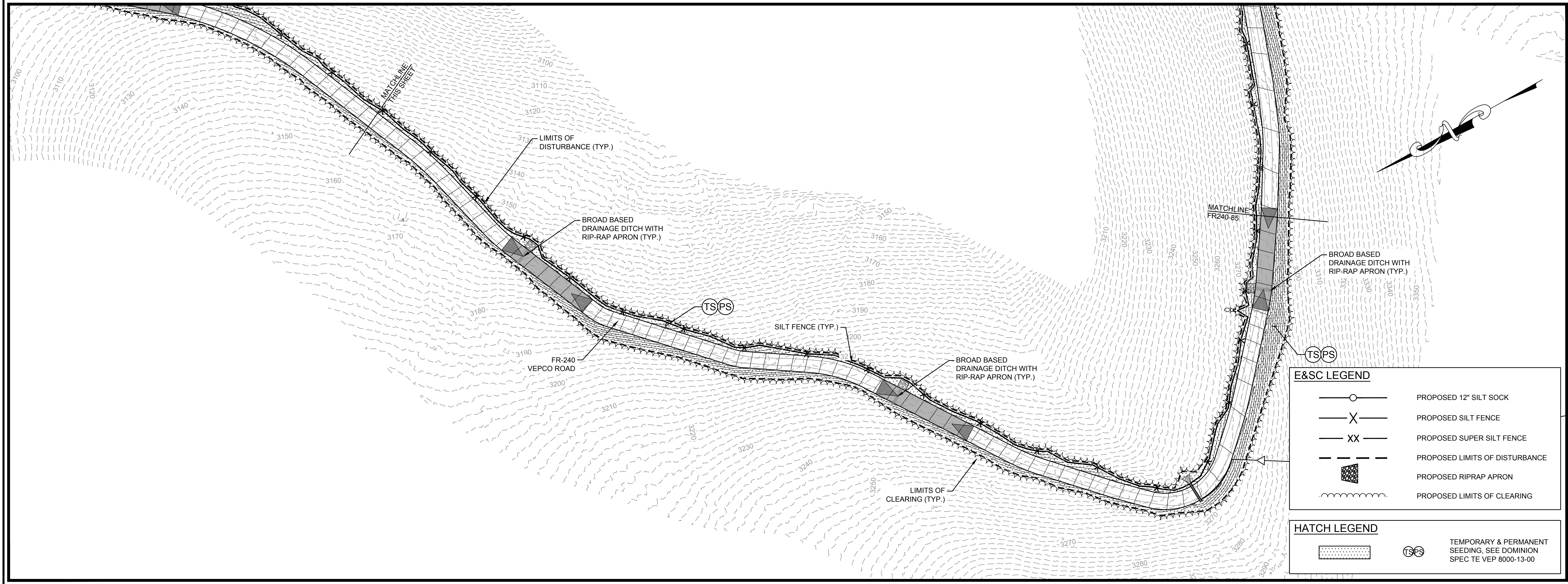
SHEET NO.



EROSION AND SEDIMENT CONTROL PLAN NOTES

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ESC PLAN



E&SC LEGEND

- | | |
|---------------|--------------------------------|
| —○— | PROPOSED 12" SILT SOCK |
| —X— | PROPOSED SILT FENCE |
| —XX— | PROPOSED SUPER SILT FENCE |
| - - - - | PROPOSED LIMITS OF DISTURBANCE |
| [Hatched Box] | PROPOSED RIPRAP APRON |
| ~~~~~ | PROPOSED LIMITS OF CLEARING |

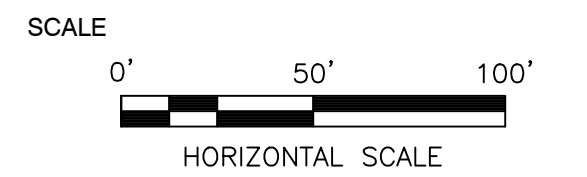
HATCH LEGEND

- | | |
|--------------|--|
| [Dotted Box] | TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00 |
| (TSPS) | |

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
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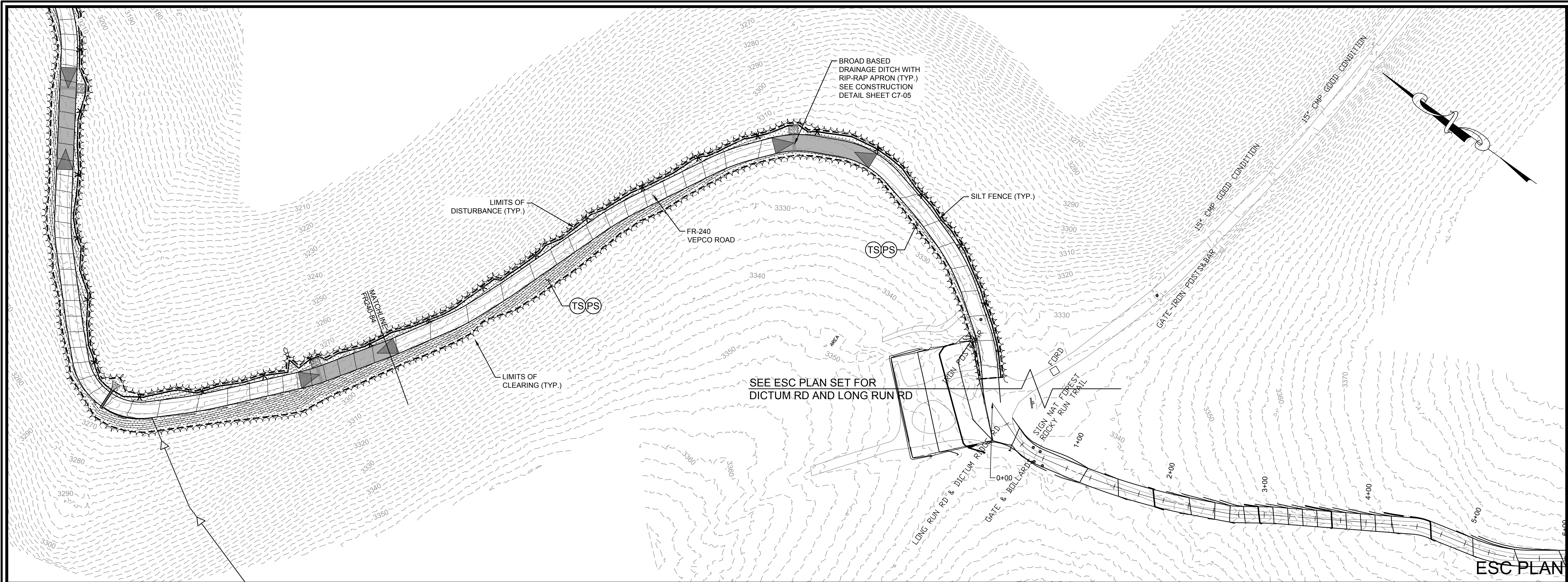
| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR-240
VEPCO ROAD
ESC PLAN

PROJECT NO. 50106442

FR240-85

SHEET NO.



EROSION AND SEDIMENT CONTROL PLAN NOTES

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E&SC LEGEND

- PROPOSED 12" SILT SOCK
- PROPOSED SILT FENCE
- PROPOSED SUPER SILT FENCE
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED RIPRAP APRON
- PROPOSED LIMITS OF CLEARING

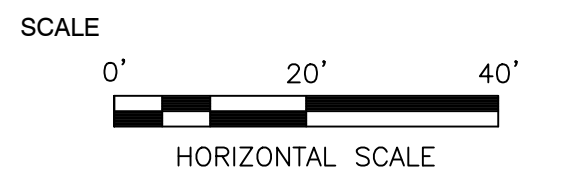
HATCH LEGEND

- TEMPORARY & PERMANENT SEEDING, SEE DOMINION SPEC TE VEP 8000-13-00

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION



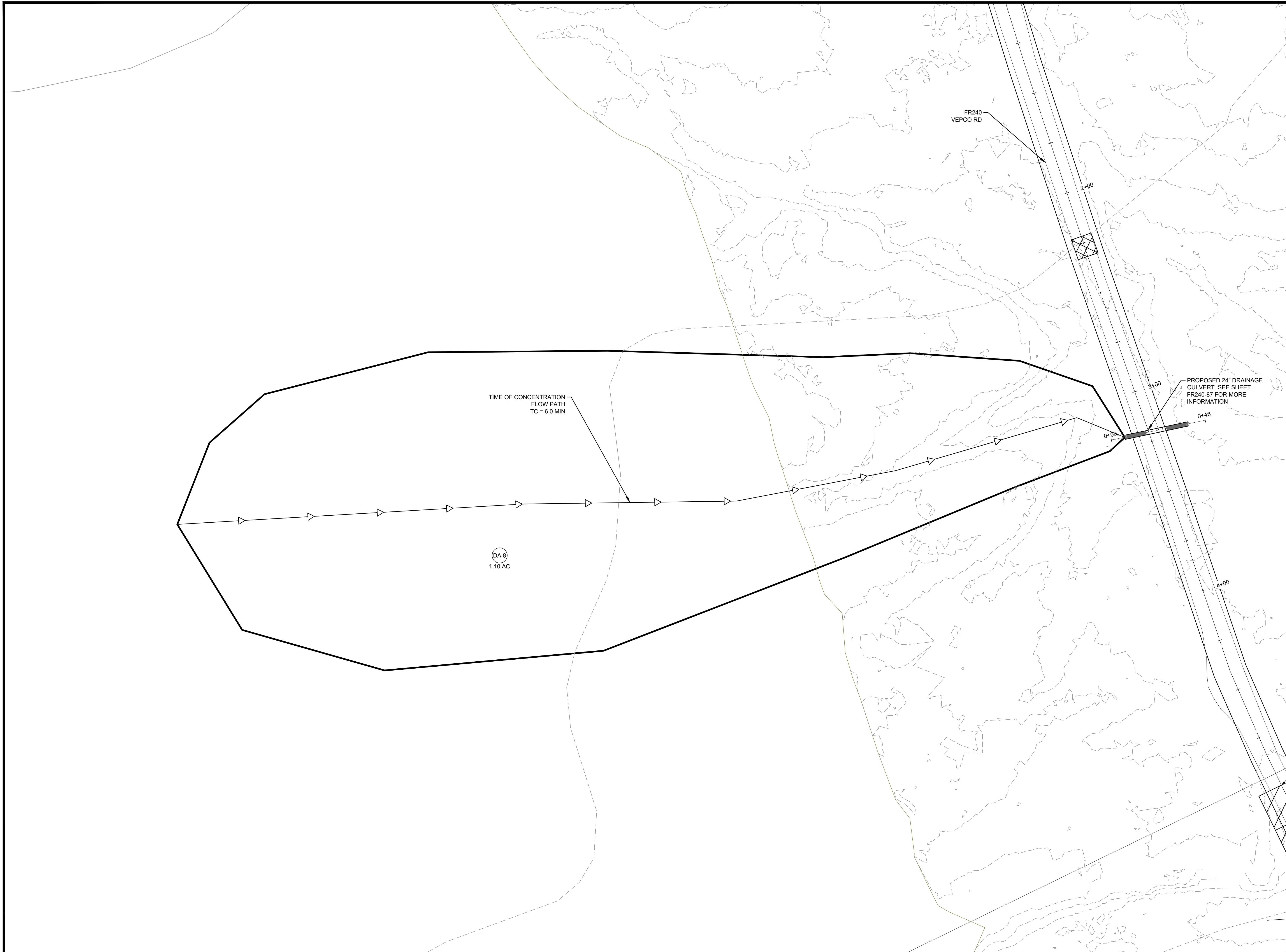
| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR240
DRAINAGE MAP

PROJECT NO. 50106442

FR240-86

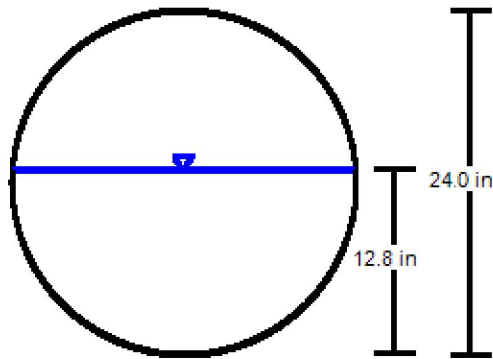
SHEET NO.



STORM PIPE CALCULATIONS

| Worksheet for Vepco 3+20 | |
|-----------------------------|-----------------|
| Project Description | |
| Friction Method | Manning Formula |
| Solve For | Normal Depth |
| Input Data | |
| Roughness Coefficient | 0.024 |
| Channel Slope | 0.002 ft/ft |
| Diameter | 24.0 in |
| Discharge | 3.07 cfs |
| Results | |
| Normal Depth | 12.8 in |
| Flow Area | 1.7 ft² |
| Wetted Perimeter | 3.3 ft |
| Hydraulic Radius | 6.3 in |
| Top Width | 2.00 ft |
| Critical Depth | 7.3 in |
| Percent Full | 53.5 % |
| Critical Slope | 0.015 ft/ft |
| Velocity | 1.79 ft/s |
| Velocity Head | 0.05 ft |
| Specific Energy | 1.12 ft |
| Froude Number | 0.341 |
| Maximum Discharge | 5.89 cfs |
| Discharge Full | 5.48 cfs |
| Slope Full | 0.001 ft/ft |
| Flow Type | Subcritical |
| GVF Input Data | |
| Downstream Depth | 0.0 in |
| Length | 0.0 ft |
| Number Of Steps | 0 |
| GVF Output Data | |
| Upstream Depth | 0.0 in |
| Profile Description | N/A |
| Profile Headloss | 0.00 ft |
| Average End Depth Over Rise | 0.0 % |
| Normal Depth Over Rise | 0.0 % |
| Downstream Velocity | 0.00 ft/s |
| Upstream Velocity | 0.00 ft/s |
| Normal Depth | 12.8 in |
| Critical Depth | 7.3 in |
| Channel Slope | 0.002 ft/ft |
| Critical Slope | 0.015 ft/ft |

| Cross Section for Vepco 3+20 | |
|------------------------------|-----------------|
| Project Description | |
| Friction Method | Manning Formula |
| Solve For | Normal Depth |
| Input Data | |
| Roughness Coefficient | 0.024 |
| Channel Slope | 0.002 ft/ft |
| Normal Depth | 12.8 in |
| Diameter | 24.0 in |
| Discharge | 3.07 cfs |



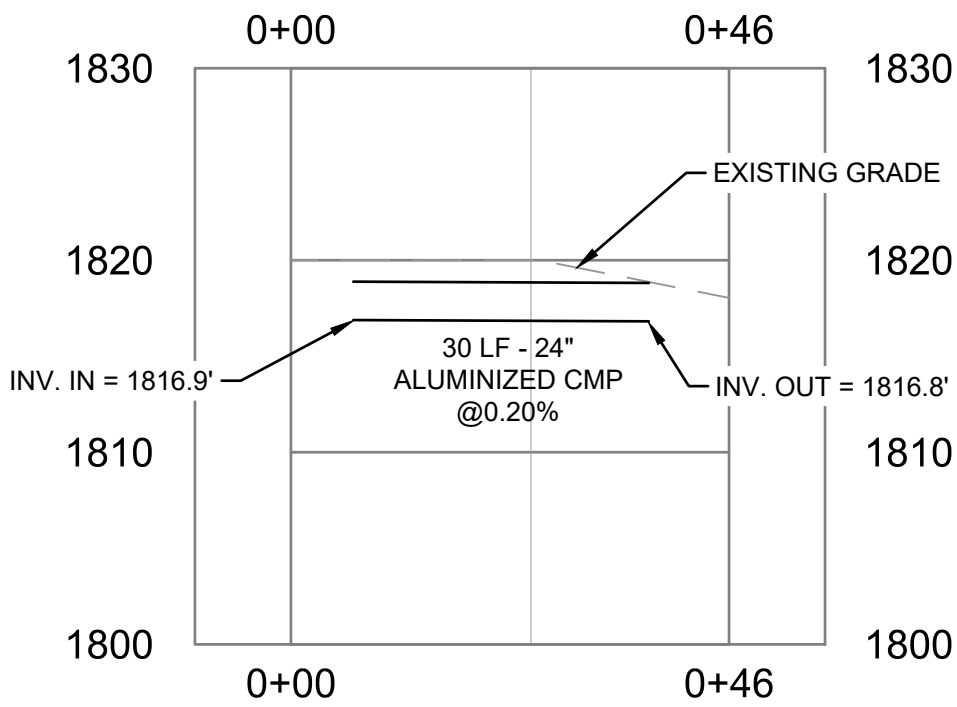
V: 1
H: 1

DRAINAGE AREA CALCULATIONS

| Shenandoah NOAA_B County, Virginia | | | | | | | |
|--|---------------------------|-------------------------------------|--------------|-----------------------|-----------------------|-------------------|------------------|
| Watershed Peak Table | | | | | | | |
| Sub-Area or Reach Identifier | | Peak Flow by Rainfall Return Period | | | | | |
| | | 10-Yr (cfs) | | | | | |
| ----- | | | | | | | |
| SUBAREAS | | | | | | | |
| Sta 3+20 | | 3.07 | | | | | |
| | | | | | | | |
| REACHES | | | | | | | |
| OUTLET | | 3.07 | | | | | |
| | | | | | | | |
| Sub-Area Time of Concentration Details | | | | | | | |
| Sub-Area Identifier/ | Flow Length (ft) | Slope (ft/ft) | Mannings's n | End Area (sq ft) | Wetted Perimeter (ft) | Velocity (ft/sec) | Travel Time (hr) |
| ----- | | | | | | | |
| Sta 3+20 | 464 | 0.0485 | 0.050 | | | | 0.036 |
| SHALLOW | | | | | | | |
| Time of Concentration | | | | | | | 0.100 |
| ----- | | | | | | | |
| Sub-Area Land Use and Curve Number Details | | | | | | | |
| Sub-Area Identifier | Land Use | | | Hydrologic Soil Group | Sub-Area Area (ac) | Curve Number | |
| ----- | | | | | | | |
| Sta 3+20 | Woods - grass combination | | | (fair) C | 1.1 | 76 | |
| Total Area / Weighted Curve Number | | | | | 1.1 | 76 | |

STORM PROFILES

DA 8 CULVERT PROFILE



Dewberry Engineers Inc.
4805 LAKE BROOK DRIVE
SUITE 200
GLEN ALLEN, VA 23060
804.290.7857 (PHONE)
804.290.7928 (FAX)

TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION

SCALE

REVISIONS

DRAWN BY JDE
APPROVED BY
CHECKED BY ARB
DATE 07/30/21

TITLE

FR240
DRAINAGE
COMPUTATIONS
AND DETAILS

PROJECT NO. 50106442

FR240-87

SHEET NO.

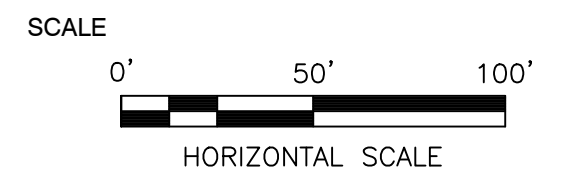


Dewberry Engineers Inc.
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TRANSMISSION LINE REBUILD
PROJECT TL 550
CONSTRUCTION DOCUMENTS
GEORGE WASHINGTON NATIONAL FOREST
WEST VIRGINIA & VIRGINIA

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION



| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR240
DRAINAGE MAP

PROJECT NO. 50106442

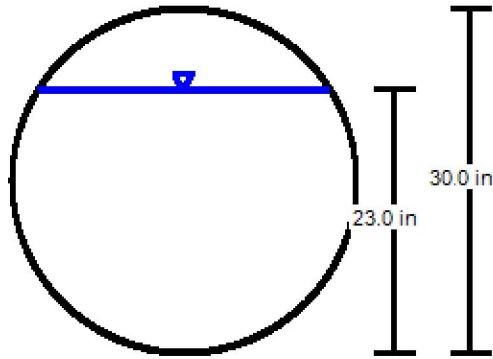
FR240-88

SHEET NO.

STORM PIPE CALCULATIONS

| Worksheet for Vepco 30+25 | |
|-----------------------------|-----------------|
| Project Description | |
| Friction Method | Manning Formula |
| Solve For | Normal Depth |
| Input Data | |
| Roughness Coefficient | 0.024 |
| Channel Slope | 0.009 ft/ft |
| Diameter | 30.0 in |
| Discharge | 20.13 cfs |
| Results | |
| Normal Depth | 23.0 in |
| Flow Area | 4.0 ft² |
| Wetted Perimeter | 5.3 ft |
| Hydraulic Radius | 9.1 in |
| Top Width | 2.12 ft |
| Critical Depth | 18.3 in |
| Percent Full | 76.6 % |
| Critical Slope | 0.017 ft/ft |
| Velocity | 4.99 ft/s |
| Velocity Head | 0.39 ft |
| Specific Energy | 2.30 ft |
| Froude Number | 0.636 |
| Maximum Discharge | 23.17 cfs |
| Discharge Full | 21.54 cfs |
| Slope Full | 0.008 ft/ft |
| Flow Type | Subcritical |
| GVF Input Data | |
| Downstream Depth | 0.0 in |
| Length | 0.0 ft |
| Number Of Steps | 0 |
| GVF Output Data | |
| Upstream Depth | 0.0 in |
| Profile Description | N/A |
| Profile Headloss | 0.00 ft |
| Average End Depth Over Rise | 0.0 % |
| Normal Depth Over Rise | 0.0 % |
| Downstream Velocity | 0.00 ft/s |
| Upstream Velocity | 0.00 ft/s |
| Normal Depth | 23.0 in |
| Critical Depth | 18.3 in |
| Channel Slope | 0.009 ft/ft |
| Critical Slope | 0.017 ft/ft |

| Cross Section for Vepco 30+25 | |
|-------------------------------|-----------------|
| Project Description | |
| Friction Method | Manning Formula |
| Solve For | Normal Depth |
| Input Data | |
| Roughness Coefficient | 0.024 |
| Channel Slope | 0.009 ft/ft |
| Normal Depth | 23.0 in |
| Diameter | 30.0 in |
| Discharge | 20.13 cfs |



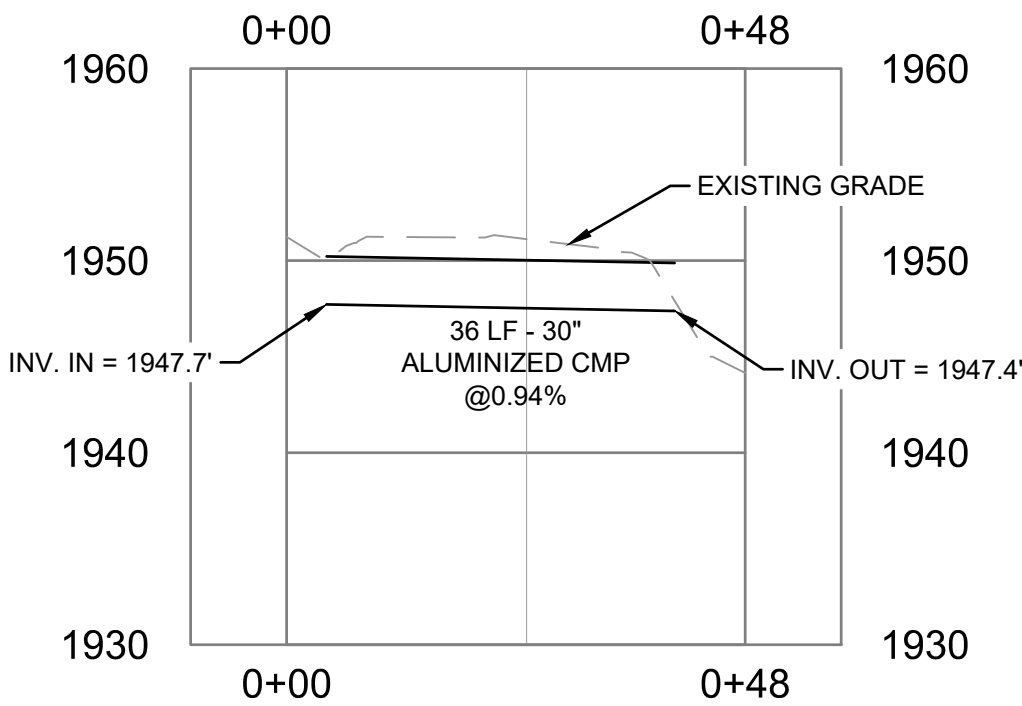
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DRAINAGE AREA CALCULATIONS

| | | | | | | | |
|--|------------------|---------------|--------------|-----------------------|-----------------------|-----------------------|------------------|
| Shenandoah NOAA B County, Virginia | | | | | | | |
| Watershed Peak Table | | | | | | | |
| Peak Flow by Rainfall Return Period | | | | | | | |
| Sub-Area or Reach Identifier | 10-Yr (cfs) | | | | | | |
| ----- | | | | | | | |
| SUBAREAS | | | | | | | |
| Sta 30+25 | 20.13 | | | | | | |
| REACHES | | | | | | | |
| OUTLET | 20.13 | | | | | | |
| Sub-Area Time of Concentration Details | | | | | | | |
| Sub-Area Identifier/ | Flow Length (ft) | Slope (ft/ft) | Mannings's n | End Area (sq ft) | Wetted Perimeter (ft) | Velocity (ft/sec) | Travel Time (hr) |
| ----- | | | | | | | |
| Sta 30+25 SHALLOW | 942 | 0.3465 | 0.050 | | | | 0.028 |
| | | | | | | Time of Concentration | 0.1 |
| | | | | | | ===== | |
| Sub-Area Land Use and Curve Number Details | | | | | | | |
| Sub-Area Identifier | Land Use | | | Hydrologic Soil Group | Sub-Area Area (ac) | Curve Number | |
| ----- | | | | | | | |
| Sta 30+25 Woods | | | | (fair) D | 6.39 | 79 | |
| Total Area / Weighted Curve Number | | | | | 6.39 | 79 | |
| | | | | | ===== | | |

STORM PROFILES

DA 7 CULVERT PROFILE



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SCALE

REVISIONS

| | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |

TITLE
FR240
DRAINAGE
COMPUTATIONS
AND DETAILS

PROJECT NO. 50106442

FR240-89

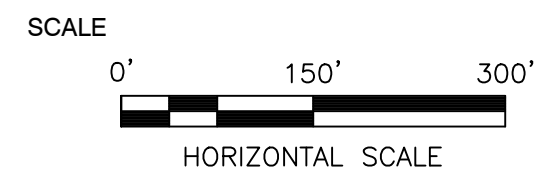
SHEET NO.



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PROJECT TL 550
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| REVISIONS | |
|-------------|----------|
| DRAWN BY | JDE |
| APPROVED BY | |
| CHECKED BY | ARB |
| DATE | 07/30/21 |
| TITLE | |

FR240
DRAINAGE MAP

PROJECT NO. 50106442

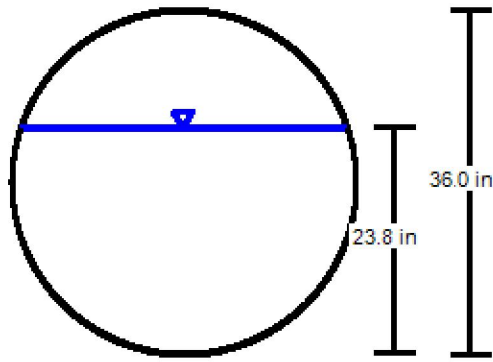
FR240-90

SHEET NO.

STORM PIPE CALCULATIONS

| Worksheet for Vepco 175+50 | |
|-----------------------------|---------------|
| Project Description | |
| Friction Method | Manning |
| Solve For | Normal Depth |
| Input Data | |
| Roughness Coefficient | 0.024 |
| Channel Slope | 0.015 ft/ft |
| Diameter | 36.0 in |
| Discharge | 34.25 cfs |
| Results | |
| Normal Depth | 23.8 in |
| Flow Area | 5.0 ft² |
| Wetted Perimeter | 5.7 ft |
| Hydraulic Radius | 10.4 in |
| Top Width | 2.84 ft |
| Critical Depth | 22.8 in |
| Percent Full | 66.1 % |
| Critical Slope | 0.017 ft/ft |
| Velocity | 6.91 ft/s |
| Velocity Head | 0.74 ft |
| Specific Energy | 2.72 ft |
| Froude Number | 0.923 |
| Maximum Discharge | 47.60 cfs |
| Discharge Full | 44.25 cfs |
| Slope Full | 0.009 ft/ft |
| Flow Type | Subcritical |
| GVF Input Data | |
| Downstream Depth | 0.0 in |
| Length | 0.0 ft |
| Number Of Steps | 0 |
| GVF Output Data | |
| Upstream Depth | 0.0 in |
| Profile Description | N/A |
| Profile Headloss | 0.00 ft |
| Average End Depth Over Rise | 0.0 % |
| Normal Depth Over Rise | 56.2 % |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 23.8 in |
| Critical Depth | 22.8 in |
| Channel Slope | 0.015 ft/ft |
| Critical Slope | 0.017 ft/ft |

| Cross Section for Vepco 175+50 | |
|--------------------------------|--------------|
| Project Description | |
| Friction Method | Manning |
| Solve For | Normal Depth |
| Input Data | |
| Roughness Coefficient | 0.024 |
| Channel Slope | 0.015 ft/ft |
| Normal Depth | 23.8 in |
| Diameter | 36.0 in |
| Discharge | 34.25 cfs |

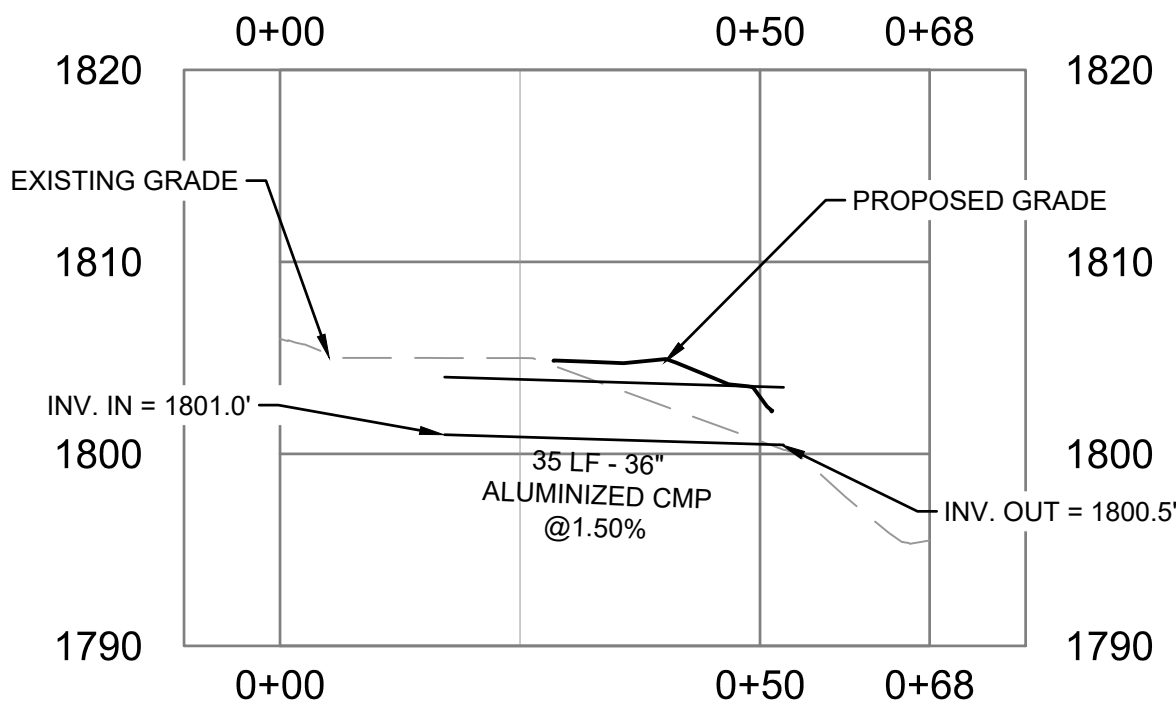


DRAINAGE AREA CALCULATIONS

| | | | | | | | |
|--|--|-----------------------------|--------------------------|------------------------|-----------------------------|----------------------|------------------------|
| j1ott | | TL 550 - CE 47A | | | | | |
| Rockingham ZONE-1 NOAA-B County, Virginia | | | | | | | |
| Hydrograph Peak/Peak Time Table | | | | | | | |
| Sub-Area or Reach Identifier | Peak Flow and Peak Time (hr) by Rainfall Return Period 10-Yr (cfs) | | | | | | |
| (hr) | | | | | | | |
| ----- | | | | | | | |
| SUBAREAS | | 34.25 | | | | | |
| CE-47A DA | 12.29 | | | | | | |
| REACHES | | | | | | | |
| OUTLET | 34.25 | | | | | | |
| j1ott | | TL 550 - CE 47A | | | | | |
| Rockingham ZONE-1 NOAA-B County, Virginia | | | | | | | |
| Sub-Area Time of Concentration Details | | | | | | | |
| Sub-Area Identifier/ | Flow Length (ft) | Slope (ft/ft) | Mannings's n | End Area (sq ft) | Wetted Perimeter (ft) | Velocity (ft/sec) | Travel Time (hr) |
| ----- | | | | | | | |
| CE-47A DA | | | | | | | |
| SHEET | 100 | 0.0440 | 0.400 | | | | 0.279 |
| SHALLOW | 2387 | 0.2100 | 0.050 | | | | 0.090 |
| Time of Concentration | | | | | | | .369 |
| ----- | | | | | | | |
| j1ott | | TL 550 - CE 47A | | | | | |
| Rockingham ZONE-1 NOAA-B County, Virginia | | | | | | | |
| Sub-Area Land Use and Curve Number Details | | | | | | | |
| Sub-Area Identifier | Land Use | Hydrologic Soil Group | Sub-Area Area (ac) | Curve Number | | | |
| ----- | | | | | | | |
| CE-47A DA Woods | | (good) | D | 19.65 77 | | | |
| Total Area / Weighted Curve Number | | | | 19.65 77 | | | |
| ----- | | | | | | | |

STORM PROFILES

DA 1 CULVERT PROFILE



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SCALE

REVISIONS

DRAWN BY JDE
APPROVED BY
CHECKED BY ARB
DATE 07/30/21

TITLE
FR240
DRAINAGE
COMPUTATIONS
AND DETAILS

PROJECT NO. 50106442

FR240-91

SHEET NO.



TRANSMISSION LINE REBUILD
PROJECT TL 550
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SCALE

0' 60' 120'

HORIZONTAL SCALE

REVISIONS

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DATE 07/30/21

TITLE _____

FR240 DRAINAGE MAP

PROJECT NO. 50106442

FR240-92

SHEET NO.



STORM PIPE CALCULATIONS

| Worksheet for CE47B - Sta 490 | |
|-------------------------------|---------------|
| Project Description | |
| Friction Method | Manning |
| Solve For | Formula |
| Normal Depth | |
| Input Data | |
| Roughness Coefficient | 0.024 |
| Channel Slope | 0.139 ft/ft |
| Diameter | 24.0 in |
| Discharge | 34.03 cfs |
| Results | |
| Normal Depth | 15.4 in |
| Flow Area | 2.1 ft² |
| Wetted Perimeter | 3.7 ft |
| Hydraulic Radius | 6.9 in |
| Top Width | 1.92 ft |
| Critical Depth | 22.9 in |
| Percent Full | 64.3 % |
| Critical Slope | 0.067 ft/ft |
| Velocity | 15.95 ft/s |
| Velocity Head | 3.95 ft |
| Specific Energy | 5.24 ft |
| Froude Number | 2.665 |
| Maximum Discharge | 49.18 cfs |
| Discharge Full | 45.72 cfs |
| Slope Full | 0.077 ft/ft |
| Flow Type | Supercritical |
| GVF Input Data | |
| Downstream Depth | 0.0 in |
| Length | 0.0 ft |
| Number Of Steps | 0 |
| GVF Output Data | |
| Upstream Depth | 0.0 in |
| Profile Description | N/A |
| Profile Headloss | 0.00 ft |
| Average End Depth Over Rise | 0.0 % |
| Normal Depth Over Rise | 64.3 % |
| Downstream Velocity | Infinity ft/s |
| Upstream Velocity | Infinity ft/s |
| Normal Depth | 15.4 in |
| Critical Depth | 22.9 in |
| Channel Slope | 0.139 ft/ft |
| Critical Slope | 0.067 ft/ft |

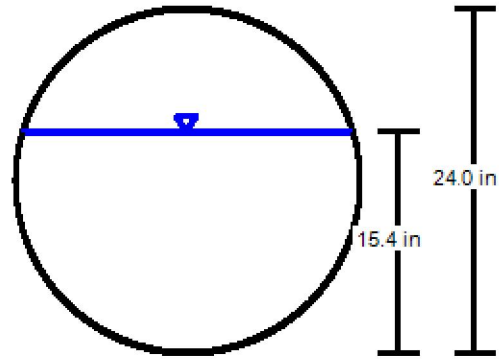
CE47B Culvert.fm8
5/24/2021

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Watertown, CT 06795 USA +1-203-755-1666

FlowMaster
[10.03.00.03]
Page 1 of 1

Cross Section for CE47B - Sta 490

| | |
|-----------------------|-------------|
| Project Description | |
| Friction Method | Manning |
| Solve For | Formula |
| Normal Depth | |
| Input Data | |
| Roughness Coefficient | 0.024 |
| Channel Slope | 0.139 ft/ft |
| Normal Depth | 15.4 in |
| Diameter | 24.0 in |
| Discharge | 34.03 cfs |



V: 1
H: 1

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5/24/2021

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Page 1 of 1

DRAINAGE AREA CALCULATIONS

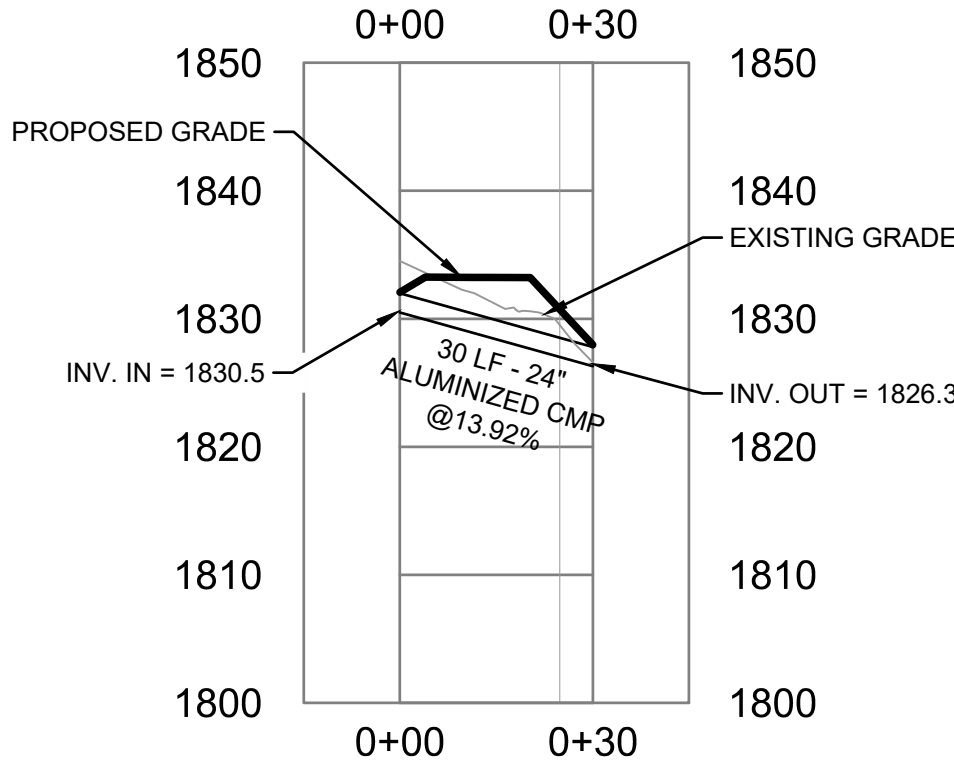
| | | |
|------------------------------------|------------------------|---|
| JEanes | | 50106442 |
| Shenandoah NOAA_B County, Virginia | | |
| Hydrograph Peak/Peak Time Table | | |
| Sub-Area or Reach Identifier | Peak 10-Yr (cfs) | Flow and Peak Time (hr) by Rainfall Return Period |
| (hr) | | |
| ----- | | |
| SUBAREAS | | |
| Sta 490-49 | 34.03 | |
| | 12.04 | |
| REACHES | | |
| OUTLET | 34.03 | |

| | | | | | | | |
|--|-------------|----------|------------|---------|-----------|----------|--------|
| J:Eanes | | 50106442 | | | | | |
| Shenandoah NOAA_B County, Virginia | | | | | | | |
| Sub-Area Time of Concentration Details | | | | | | | |
| Sub-Area Identifier/ | Flow Length | Slope | Mannings's | End | Wetted | Velocity | Travel |
| | (ft) | (ft/ft) | n | Area | Perimeter | (ft/sec) | Time |
| | | | | (sq ft) | (ft) | | (hr) |
| ----- | | | | | | | |
| Sta 490-49 | | | | | | | |
| SHEET | 100 | 0.3550 | 0.800 | | | | 0.211 |
| SHALLOW | 1492 | 0.3550 | 0.050 | | | | 0.043 |
| Time of Concentration | | | | | | | .254 |
| | | | | | | | ===== |

| | | | | |
|--|----------|-----------------------|--------------------|--------------|
| J:Eanes | | 50106442 | | |
| Shenandoah NOAA_B County, Virginia | | | | |
| Sub-Area Land Use and Curve Number Details | | | | |
| Sub-Area Identifier | Land Use | Hydrologic Soil Group | Sub-Area Area (ac) | Curve Number |
| Sta 490-49Woods | | (fair) | D | 13.47 |
| Total Area / Weighted Curve Number | | | 13.47 | 79 |
| | | | ===== | == |

STORM PROFILES

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5/24/2021

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[10.03.00.03]
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FR240
DRAINAGE
COMPUTATIONS
AND DETAILS

PROJECT NO. 50106442

FR240-93

SHEET NO.